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ABSTRACT OF

A Presidential Address

ON

HEREDITY IN MAN.

Delivered in Sydney on August 20th, 1914, before the Meeting of the British Association for the Advancement of Science.

BY WILLIAM BATESON, M.A., F.R.S.,

PRESIDENT OF THE ASSOCIATION.

[Professor Bateson commenced his address by referring to what he had said at Melbourne in regard to Mendelian analysis and the resulting discoveries. Although confession had to be made of deep ignorance in regard to theoretical aspects, he said that enough had been learnt of the general course of heredity within a single species to justify many practical conclusions which could not in the main be shaken. He then continued:]

THE FACTORIAL SYSTEM IN HUMAN INHERITANCE.

I propose now to develop some of these conclusions in regard to our own species—Man.

In my former address[1] I mentioned the condition of certain animals and plants which are what we call "polymorphic." Their populations consist of individuals of many types, though they breed freely together with perfect fertility. In cases of this kind which have been sufficiently investigated it has been found that these distinctions—sometimes very great and affecting most diverse features of organisation—are due to the presence or absence of elements, or factors as we call them, which are treated in heredity as separate entities. These factors and their combinations produce the characteristics which we perceive. No individual can acquire a particular characteristic unless the requisite factors entered into the composition of that individual at fertilisation, being received either from the father or from the mother or from both, and consequently no individual can pass on to his offspring positive characters which he does not himself possess. Rules of this kind have already been traced in operation in the human species; and though I admit that an assumption of some magnitude is involved when we extend the application of the same system to human characteristics in general, yet the assumption is one which I believe we are fully justified in making. With little hesitation we can now declare that the potentialities and aptitudes, physical as well as mental—sex, colours, powers of work or invention, liability to diseases, possible duration of life, and the other features by which the members of a mixed population differ from each other—are determined from the moment of fertilisation; and by all that we know of heredity in the forms of life with which we can experiment we are compelled to believe that these qualities are in the main distributed on a factorial system. By changes in the outward conditions of life the expression of some of these powers and features may be excited or restrained. For the development of some an external opportunity is needed, and if that be withheld the character is never seen, any more than if the body be starved can the full height be attained; but such influences are superficial and do not alter the genetic constitution.

The factors which the individual receives from his parents and no others are those which he can transmit to his offspring; and if a factor was received from one parent only, not more than half the offspring, on an average, will inherit it. [The reasons why mankind had not discovered such simple facts were considered. The individual body is a *double* structure, whereas the germ cells are *single*. Two germ cells unite to produce each individual body, and the ingredients they respectively contribute interact in ways that leave the ultimate product a medley in which it is difficult to identify the several ingredients. When, however, their effects are conspicuous the task is by no means impossible. If only pedigrees had been drawn the right way up, the essential truth that heredity can be expressed in terms of presence and absence must have at once become apparent. He continued:]

Let me not, however, give the impression that the unravelling of such descents is easy. Even with fairly full details, which in the case of man are very rarely to be had, many complications occur, often preventing us from obtaining more than a rough general indication of the system of descent. The nature of these complications we partly understand from our experience of animals and plants which are amenable to breeding under careful restrictions, and we know that they are mostly referable to various effects of interaction between factors by which the presence of some is masked.

EVIDENCE AFFORDED BY NORMAL AND ABNORMAL CONDITIONS.

Necessarily the clearest evidence of regularity in the inheritance of human characteristics has been obtained in regard to the descent of marked abnormalities of structure and congenital diseases. Of the descent of ordinary distinctions such as are met with in the normal healthy population we know little for certain. Everything points to the inference that the genetics of colour and many other features in man will prove exceptionally complex. There are, however, plenty of indications of system comparable with those which we trace in various animals and plants, and we are assured that to extend and clarify such evidence is only a matter of careful analysis. For the present, in asserting almost any general rules for human descent, we do right to make large reservations for possible exceptions. It is tantalising to have to wait, but of the ultimate result there can be no doubt.

I spoke of complications. Two of these are worth illustrating here, for probably both of them play a great part in human genetics. It was discovered by Nilsson-Ehle, in the course of experiments with certain wheats, that several factors having the same power may coexist in the same individual. These cumulative factors do not necessarily produce a cumulative effect, for any one of them may suffice to give the full result. In some cases, as in the primulas studied by Gregory, the effect is cumulative. [The curious case of the mulatto was described, Professor Bateson at present owning to a preference for regarding such examples as instances of imperfect segregation. There are many signs that in human heredity phenomena of this kind are common, whether they indicate a multiplicity of cumulative factors or imperfections in segregation. Such phenomena, however, in no way detract from the essential truths that segregation occurs, and that the organism cannot pass on a factor which it has not itself received. In human heredity, he continued, we have found some examples, and he believed that we shall find

[1] THE LANCET, August 15th, 1914, p. 435.

many more, in which the descent of factors is limited by sex. The classical instances are those of colour-blindness and hæmophilia. Both these conditions occur with much greater frequency in males than in females. Such descent he considers an admirable illustration of factorial predestination. It moreover exemplifies that *parental polarity* of the zygote to which I alluded in my first address, a phenomenon which we suspect to be at the bottom of various anomalies of heredity, and suggests that there may be truth in the popular notion that in some respects sons resemble their mothers and daughters their fathers. As to the descent of hereditary diseases and malformations, however, we have abundant data for deciding that many are transmitted as dominants and a few as recessives. The most remarkable collection of these data is to be found in family histories of diseases of the eye. Neurology and dermatology have also contributed many very instructive pedigrees. In great measure the ophthalmological material was collected by Edward Nettleship, for whose death we so lately grieved. Professor Bateson said that at various times it has been declared that men are born equal, and that the inequality is brought about by unequal opportunities. Acquaintance with the pedigrees of disease soon shows the fatuity of such fancies. The same conclusion, we may be sure, would result from the true representation of the descent of any human faculty. The results likely to flow from Mendel's work by direct application to the breeding of animals and plants were alluded to. But he imagined that the greatest practical change likely to ensue from modern genetic discovery would be a quickening of interest in the true nature of man and in the biology of races. He had spoken cautiously as to the evidence for the operation of any simple Mendelian system in the descent of human faculty; yet the certainty that systems which differ from the simpler schemes only in degree of complexity are at work in the distribution of characters among the human population cannot fail to influence our conceptions of life and of ethics, leading perhaps ultimately to modification of social usage. Men are so far from being born equal or similar that to the naturalist they stand as the very type of a polymorphic species. Even most of our local races consist of many distinct strains and individual types.

DEFECTIVES AND EUGENICS.

Professor Bateson then dealt with the subject of defectives, saying that it is not for us to consider practical measures. As men of science we observe natural events and deduce conclusions from them. He said that the remedies proposed in America, in so far as they aim at the eugenic regulation of marriage on a comprehensive scale, struck him as devised without regard to the needs either of individuals or of a modern State. The spirit of eugenic organisations almost of necessity suffers from a bias towards the accepted and the ordinary, and if they had power it would go hard with many ingredients of society that could be ill-spared. He proceeded:

> Genetic research will make it possible for a nation to elect by what sort of beings it will be represented not very many generations hence, much as a farmer can decide whether his byres shall be full of shorthorns or Herefords. It will be very surprising indeed if some nation does not make trial of this new power. They may make awful mistakes, but I think they will try.

Whether we like it or not, extraordinary and far-reaching changes in public opinion are coming to pass. Man is just beginning to know himself for what he is—a rather long-lived animal, with great powers of enjoyment if he does not deliberately forego them. Hitherto superstition and mythical ideas of sin have predominantly controlled these powers. Mysticism will not die out: for those strange fancies knowledge is no cure; but their forms may change, and mysticism as a force for the suppression of joy is happily losing its hold on the modern world. As in the decay of earlier religions Ushabti dolls were substituted for human victims, so telepathy, necromancy, and other harmless toys take the place of eschatology and the inculcation of a ferocious moral code. Among the civilised races of Europe we are witnessing an emancipation from traditional control in thought, in art, and in conduct which is likely to have prolonged and wonderful influences. Returning to freer or, if you will, simpler conceptions of life and death, the coming generations are determined to get more out of this world than their forefathers did. Is it then to be supposed that when science puts into their hand means for the alleviation of suffering immeasurable, and for making this world a happier place, they will demur to using those powers? The intenser struggle between communities is only now beginning, and with the approaching exhaustion of that capital of energy stored in the earth before man began it must soon become still more fierce. In England some of our great-grandchildren will see the end of the easily accessible coal, and, failing some miraculous discovery of available energy, a wholesale reduction in population. There are races who have shown themselves able at a word to throw off all tradition and take into their service every power that science has yet offered them. Can we expect that they, when they see how to rid themselves of the ever-increasing weight of a defective population, will hesitate. The time cannot be far distant when both individuals and communities will begin to think in terms of biological fact, and it behoves those who lead scientific thought carefully to consider whither action should lead. At present I ask you merely to observe the facts. The powers of science to preserve the defective are now enormous. Every year these powers increase. This course of action must reach a limit. To the deliberate intervention of civilisation for the preservation of inferior strains there must sooner or later come an end, and before long nations will realise the responsibility they have assumed in multiplying these "cankers of a calm world and a long peace."

The definitely feeble-minded we may with propriety restrain, as we are beginning to do even in England, and we may safely prevent unions in which both parties are defective, for the evidence shows that, as a rule, such marriages, though often prolific, commonly produce no normal children at all. The union of such social vermin we should no more permit than we would allow parasites to breed on our own bodies. Further than that in restraint of marriage we ought not to go, at least not yet. Something, too, may be done by a reform of medical ethics. Medical students are taught that it is their duty to prolong life at whatever cost in suffering. This may have been right when diagnosis was uncertain and interference usually of small effect; but deliberately to interfere now for the preservation of an infant so gravely diseased that it can never be happy or come to any good is

very like wanton cruelty. In private few men defend such interference. Most who have seen these cases lingering on agree that the system is deplorable, but ask where can any line be drawn. The biologist would reply that in all ages such decisions have been made by civilised communities with fair success both in regard to crime and in the closely analogous case of lunacy. The real reason why these things are done is because the world collectively cherishes occult views of the nature of life, because the facts are realised by few, and because between the legal mind—to which society has become accustomed to defer—and the seeing eye there is such physiological antithesis that hardly can they be combined in the same body. So soon as scientific knowledge becomes common property views more reasonable and, I may add, more humane are likely to prevail.

To all these great biological problems that modern society must sooner or later face there are many aspects besides the obvious ones.

[Infant mortality was referred to, and the opinion was expressed that in England the limit beyond which under present conditions of distribution increase of population is a source of suffering rather than of happiness has been reached already. Younger communities living in territories largely vacant are very probably right in desiring and encouraging more population. Increase may, for some temporary reason, be essential to their prosperity. Even the decline in the birth-rate of the intelligent and successful sections of the population (of the older communities) could not be granted without qualification.]

THE PROGRESS OF MAN.

In the study of history biological treatment is only beginning to be applied. For us the causes of the success and failure of races are physiological events, and the progress of man has depended upon a chain of these events, like those which have resulted in the "improvement" of the domesticated animals and plants. It is obvious, for example, that had the cereals never been domesticated cities could scarcely have existed. But we may go further, and say that in temperate countries of the Old World (having neither rice nor maize) populations concentrated in large cities have been made possible by the appearance of a "thrashable" wheat. The ears of the wild wheats break easily to pieces, and the grain remains in the thick husk. Such wheat can be used for food, but not readily. Ages before written history began, in some unknown place, plants, or more likely a plant, of wheat lost the dominant factor to which this brittleness is due, and the recessive, thrashable wheat resulted. Some man noticed this wonderful novelty, and it has been disseminated over the earth. The original variation may well have occurred once only, in a single germ cell.

So must it have been with man. Translated into terms of factors, how has that progress in control of nature which we call civilisation been achieved? By the sporadic appearance of variations, mostly, perhaps all, consisting in a loss of elements, which inhibit the free working of the mind. The members of civilised communities, when they think about such things at all, imagine the process a gradual one, and that they themselves are active agents in it. Few, however, contribute anything but their labour; and except in so far as they have freedom to adopt and imitate, their physiological composition is that of an earlier order of beings. Annul the work of a few hundreds—I might almost say scores—of men, and on what plane of civilisation should we be? We should not have advanced beyond the mediæval stage without printing, chemistry, steam, electricity, or surgery worthy the name. These things are the contributions of a few excessively rare minds. Galton reckoned those to whom the term "illustrious" might be applied as one in a million, but in that number he is, of course, reckoning men famous in ways which add nothing to universal progress. To improve by subordinate invention, to discover details missed, even to apply knowledge never before applied, all these things need genius in some degree, and are far beyond the powers of the average man of our race; but the true pioneer, the man whose penetration creates a new world, as did that of Newton and of Pasteur, is inconceivably rare. But for a few thousands of such men we should perhaps be in the palæolithic era, knowing neither metals, writing, arithmetic, weaving, nor pottery.

In the history of art the same is true, but with this remarkable difference, that not only are gifts of artistic creation very rare, but even the faculty of artistic enjoyment, not to speak of higher powers of appreciation, is not attained without variation from the common type. I am speaking, of course, of the non-Semitic races of modern Europe, among whom the power whether of making or enjoying works of art is confined to an insignificant number of individuals. Appreciation can in some degree be simulated, but in our population there is no widespread physiological appetite for such things. When detached from the centres where they are made by others most of us pass our time in great contentment, making nothing that is beautiful, and quite unconscious of any deprivation. Musical taste is the most notable exception, for in certain races—for example, the Welsh and some of the Germans—it is almost universal. Otherwise artistic faculty is still sporadic in its occurrence. The case of music well illustrates the application of genetic analysis to human faculty. No one disputes that musical ability is congenital. In its fuller manifestation it demands sense of rhythm, ear, and special nervous and muscular powers. Each of these is separable and doubtless genetically distinct. Each is the consequence of a special departure from the common type. Teaching and external influences are powerless to evoke these faculties, though their development may be assisted. The only conceivable way in which the people of England, for example, could become a musical nation would be by the gradual rise in the proportional numbers of a musical strain or strains until the present type became so rare as to be negligible. It by no means follows that in any other respect the resulting population would be distinguishable from the present one. Difficulties of this kind beset the efforts of anthropologists to trace racial origins. It must continually be remembered that most characters are independently transmitted and capable of such recombination. In the light of Mendelian knowledge the discussion whether a race is pure or mixed loses almost all significance. A race is pure if it breeds pure and not otherwise. Historically we may know that a race like our own was, as a matter of fact, of mixed origin. But a character may have been introduced by a single individual, though subsequently it becomes common

to the race. This is merely a variant on the familiar paradox that in the course of time if registration is accurate we shall all have the same surname. In the case of music, for instance, the gift, originally perhaps from a Welsh source, might permeate the nation, and the question would then arise whether the nation, so changed, was the English nation or not.

THE RACIAL CHARACTERISTICS OF THE GREEKS.

Such a problem is raised in a striking form by the population of modern Greece, and especially of Athens. The racial characteristics of the Athenian of the fifth century B.C. are vividly described by Galton in "Hereditary Genius." The fact that in that period a population, numbering many thousands, should have existed, capable of following the great plays at a first hearing, revelling in subtleties of speech, and thrilling with passionate delight in beautiful things, is physiologically a most singular phenomenon. On the basis of the number of illustrious men produced by that age Galton estimated the average intelligence as at least two of his degrees above our own, differing from us as much as we do from the negro. A few generations later the display was over. The origin of that constellation of human genius which then blazed out is as yet beyond all biological analysis, but I think we are not altogether without suspicion of the sequence of the biological events. If I visit a poultry breeder who has a fine stock of thoroughbred game fowls breeding true, and ten years later—that is to say, ten fowl generations later—I go again and find scarcely a recognisable game-fowl on the place, I know exactly what has happened. One or two birds of some other or of no breed must have strayed in and their progeny been left undestroyed. Now in Athens we have many indications that up to the beginning of the fifth century so long as the phratries and gentes were maintained in their integrity there was rather close endogamy, a condition giving the best chance of producing a homogeneous population. There was no lack of material from which intelligence and artistic power might be derived. Sporadically these qualities existed throughout the ancient Greek world from the dawn of history, and, for example, the vase-painters, the makers of the Tanagra figurines, and the gem-cutters were presumably pursuing family crafts, much as are the actor families[2] of England or the professional families of Germany at the present day. How the intellectual strains should have acquired predominance we cannot tell, but in an in-breeding community homogeneity at least is not surprising. At the end of the sixth century came the "reforms" of Cleisthenes (507 B.C.), which sanctioned foreign marriages and admitted to citizenship a number not only of resident aliens but also of manumitted slaves. As Aristotle says, Cleisthenes legislated with the deliberate purpose of breaking up the phratries and gentes, in order that the various sections of the population might be mixed up as much as possible and the old tribal associations abolished. The "reform" was probably a recognition and extension of a process already begun; but is it too much to suppose that we have here the effective beginning of a series of genetic changes which in a few generations so greatly altered the character of the people? Under Pericles the old law was restored (451 B.C.), but losses in the great wars led to further laxity in practice, and though at the end of the fifth century the strict rule was re-enacted that a citizen must be of citizen-birth on both sides, the population by that time may well have become largely mongrelised.

Let me not be construed as arguing that mixture of races is an evil: far from it. A population like our own, indeed, owes much of its strength to the extreme diversity of its components, for they contribute a corresponding abundance of aptitudes. Everything turns on the nature of the ingredients brought in, and I am concerned solely with the observation that these genetic disturbances lead ultimately to great and usually unforeseen changes in the nature of the population. Some experiments of this kind are going on at the present time. [In illustration of this, reference was made to the United States and to Japan, as also to our own Peerage.]

Historians commonly ascribe such changes as occurred in Athens, and will almost certainly come to pass in the United States, to conditions of life and especially to political institutions. These agencies, however, do little unless they are such as to change the breed. External changes may indeed give an opportunity to special strains, which then acquire ascendency. The industrial developments which began at the end of the eighteenth century, for instance, gave a chance to strains till then submerged, and their success involved the decay of most of the old aristocratic families. But the demagogue who would argue from the rise of the one and the fall of the other that the original relative positions were not justifiable altogether mistakes the facts. Conditions give opportunities but cause no variations. For example, in Athens, to which I just referred, the universality of cultivated discernment could never have come to pass but for the institution of slavery which provided the opportunity, but slavery was in no sense a cause of that development, for many other populations have lived on slaves and remained altogether inconspicuous.

[The long-standing controversy as to the relative importance of nature and nurture, to use Galton's "convenient jingle of words," is, said Professor Bateson, drawing to an end, and of the overwhelmingly greater significance of nature there is no longer any possibility of doubt. It is faith, not evidence, which encourages educationists and economists to hope so greatly in the ameliorating effects of the conditions of life.]

BIOLOGY AND SCHEMES FOR REFORM.

In all practical schemes for social reform the congenital diversity, the essential polymorphism of all civilised communities must be recognised as a fundamental fact, and reformers should rather direct their efforts to facilitating and rectifying class-distinctions than to any futile attempt to abolish them. The teaching of biology is perfectly clear. We are what we are by virtue of our differentiation. The value of civilisation has in all ages been doubted. Since, however, the first variations were not strangled in their birth, we are launched on that course of variability of which civilisation is the consequence. We cannot go back to homogeneity again, and differentiated we are likely to continue. For a period measures designed to create a spurious homogeneity may be applied. Such attempts will, I anticipate, be made when the present unstable social state reaches a climax of instability, which may not be long hence. Their

[2] For tables of these families, see the Supplement to Who's Who in the Theatre.

effects can be but evanescent. The instability is due not to inequality, which is inherent and congenital, but rather to the fact that in periods of rapid change like the present, convection currents are set up such that the elements of the strata get intermixed and the apparent stratification corresponds only roughly with the genetic. In a few generations under uniform conditions these elements settle in their true levels once more.

In such equilibrium is content most surely to be expected. To the naturalist the broad lines of solution of the problems of social discontent are evident. They lie neither in vain dreams of a mystical and disintegrating equality, nor in the promotion of that malignant individualism which in older civilisations has threatened mortification of the humbler organs, but rather in a physiological coördination of the constituent parts of the social organism. The rewards of commerce are grossly out of proportion to those attainable by intellect or industry. Even regarded as compensation for a dull life, they far exceed the value of the services rendered to the community. Such disparity is an incident of the abnormally rapid growth of population and is quite indefensible as a permanent social condition. Nevertheless, capital, distinguished as a provision for offspring, is a eugenic institution; and unless human instinct undergoes some profound and improbable variation, abolition of capital means the abolition of effort; but as in the body the power of independent growth of the parts is limited and subordinated to the whole, similarly in the community we may limit the powers of capital, preserving so much inequality of privilege as corresponds with physiological fact.

At every turn the student of political science is confronted with problems that demand biological knowledge for their solution. Most obviously is this true in regard to education, the criminal law, and all those numerous branches of policy and administration which are directly concerned with the physiological capacities of mankind. Assumptions as to what can be done and what cannot be done to modify individuals and races have continually to be made, and the basis of fact on which such decisions are founded can be drawn only from biological study.

A knowledge of the facts of nature is not yet deemed an essential part of the mental equipment of politicians; but as the priest, who began in other ages as medicine-man, has been obliged to abandon the medical parts of his practice, so will the future behold the schoolmaster, the magistrate, the lawyer, and ultimately the statesman, compelled to share with the naturalist those functions which are concerned with the physiology of race.

ISOLATION ACCOMMODATION IN BRIDGEND.—The medical officer of health of the urban district of Bridgend, in Glamorgan, Mr. Wyndham Randall, once more in his annual report draws attention to the wholly inadequate accommodation available for the isolation of infectious disease in the district. Six years ago an isolation hospital was erected with accommodation for 12 patients to serve Bridgend and adjoining districts with a present population of about 44,000. During 1913 there were treated in the wards 35 cases from Bridgend alone, and on many occasions the number of patients greatly exceeded the normal accommodation. At one time 11 patients were in a six-bed ward and on another occasion several little girls had to be placed in a ward in which there were also men and boys. Five patients were for a short time in a two-bed ward and children had to be isolated in the kitchen and bathroom.

THE DIAGNOSTIC VALUE OF THE COMPLEMENT FIXATION REACTION IN TUBERCULOSIS.

PART I.—IN GENERAL HOSPITAL PRACTICE.

BY JAMES McINTOSH, M.D. ABERD.,
BEIT MEMORIAL RESEARCH FELLOW; LATE RESEARCH SCHOLAR OF THE GROCERS' COMPANY;
AND
PAUL FILDES, M.B., B.C. CANTAB.,
ASSISTANT BACTERIOLOGIST TO THE LONDON HOSPITAL.
(*From the Bacteriological Laboratory of the London Hospital.*)

PART II.—IN SANATORIUM PRACTICE.

BY J. A. D. RADCLIFFE, M.B., B.CH. R.U.I.,
PATHOLOGIST TO KING EDWARD VII. SANATORIUM, MIDHURST.

PART I.—IN GENERAL HOSPITAL PRACTICE.

To make a certain diagnosis of tuberculosis is in many instances a very difficult task, and for this reason numerous attempts have been made to procure a reliable biological test. The expectation raised by Koch's discovery of the tubercle bacillus has not been fully realised, since some patients with pulmonary tuberculosis have no bacilli in their sputum, and, again, the lesion is not always suited to direct examination. The tuberculin test in its various forms has proved very unreliable under the usual conditions of practice, while the agglutination and precipitin reactions are so frequently absent as to make them of no diagnostic value.

From a study of the literature dealing with complement fixation in tuberculosis it is clear that great diversity has been obtained in the results, while few have published series of cases of sufficient magnitude or sufficiently controlled to allow of exact deductions. The chief cause for the diversity in the results is the composition of the antigen used. It was not appreciated by the earlier writers that an antigen consisting of old tuberculin was not analogous to an emulsion of tubercle bacilli. In fact, the antisubstances to these antigens are entirely different (Bauer).

Bordet and Gengou in 1903 demonstrated that antibodies capable of uniting with tubercle bacilli and fixing complement were present in the sera of tuberculous animals. Wassermann and Bruck in 1906, after a series of experiments, stated that the sera of tuberculous patients who had been treated with tuberculin contained an antibody capable of fixing complement in the presence of tuberculin; they, however, only examined 13 cases of pulmonary tuberculosis. Citron shortly afterwards stated that antituberculin was present in the sera of tuberculous individuals who had not been treated with tuberculin. The results of Wassermann and his pupils must not be accepted with too much confidence owing to the crudeness of the technique and to the tendency of organ extracts to give non-specific reactions. Morgenroth and Rabinowitsch, and Meyer, using the technique described by Wassermann, were unable to confirm his results.

With tuberculin as antigen and a more elaborate technique Bermbach, Wolff and Mühsam, and others found antituberculin substances present in the sera of tuberculous patients. Wolff and Mühsam obtained 78 positive results in 105 cases of phthisis. Cohn obtained 15 out of 57 and Koch about one-third of positive results. These were all in cases of phthisis which had not been treated with tuberculin. Fua and H. Koch in tuberculous children

obtained only negative results unless tuberculin treatment had previously been received. Recently (1914) Besredka, by using a special tuberculin, obtained by growing the bacilli on "egg broth," claimed a large percentage of positive results. His antigen, however, cannot be regarded as being altogether specific, since Inman and Kuss, Leredde and Rubenstein found that non-tuberculous syphilitics gave the reaction frequently. It is clear that certain tissue extracts containing liquid substances will operate as a Wassermann antigen and tend to give positive Wassermann reactions in cases of syphilis. In general it may be said that antituberculin is not constantly present in the sera of tuberculous patients, and in the case of children this is specially true (Engel and Bauer). After the administration of tuberculin, however, antituberculin is present more or less constantly. The use of tuberculin as an antigen, moreover, is inadvisable owing to its liability to give non-specific results.

With an emulsion of tubercle bacilli as antigen the results recorded are also variable. Wolff-Eisner obtained a large percentage of positive reactions, but considered the test non-specific, since positive results also occurred in non-tuberculous diseases. Frugoni came to the same conclusion in view of 6 per cent. of non-specific results. More recent workers, however, state that the reaction is specific. The best results have been described in phthisis, though only a small number of other forms of tubercle have been examined. Caulfield examined 104 cases of pulmonary tuberculosis, and of these 62 per cent. were positive; in Hammer's series 97 per cent. were positive; in Dudgeon's 84 per cent. Others, again, have obtained inferior results. Nevertheless, there is enough evidence to show that antisubstances are present in the sera of tuberculous individuals which are capable of fixing complement in the presence of tubercle bacilli, but it has been doubted whether they are present sufficiently constantly to make them of value for diagnostic purposes. This investigation was undertaken to test this point; it was hoped that by a more elaborate technique a higher percentage of positive results might be obtained.

Technique.

The technique which we have employed in carrying out the tests resembles in principle that which we have elaborated for the Wassermann reaction, and need not be referred to in detail. As an indicator we have used both sheep and ox corpuscles, and have found the latter to be of advantage when the test serum contains an excess of the so-called "normal amboceptor" for sheep's corpuscles. Further, we allow 1½ hours instead of 1 hour as in the Wassermann reaction for fixation to occur.

The only reagent which requires special mention is the antigen. Considerable difficulty was experienced with this reagent, but after a series of experiments in which various tuberculins and preparations of tubercle bacilli were tested we found that a simple emulsion of living tubercle bacilli gave the best results. The emulsion ought to be made up freshly for each batch of tests, but as this is not always convenient a quantity sufficient for two or three tests may be prepared, but it should never be kept longer than a month.

Every strain of tubercle bacillus is not suitable to act as an antigen, and to obtain such a strain a certain selection must be exercised. That selected should emulsify fairly easily, in addition to having a good specific fixing power. The strain employed in the tests was of the human type isolated from a case of phthisis, and was grown on Dorset's egg medium, on which it produced a more or less diffuse growth in from 7 to 10 days. In making the antigen six culture tubes are taken and the growth scraped from the surface with a stout bent platinum wire into a weighing glass. The mass of tubercle bacilli is then weighed and an emulsion made in saline, so that there is 1 grm. of moist bacilli in 50 c.c. of saline. The emulsion is most easily obtained with the aid of Hayden's bacteria mill, which consists of a glass plate with a central depression and a polished glass pestle ground accurately to fit. Failing this an agate mortar may be used. The emulsion should be kept in a glass-stoppered bottle, and if thought necessary carbolic acid to ½ per cent. may be added.

The actual amount required in the test must be estimated for each batch of sera, and we have found by experiment that a suitable quantity is a quarter of that amount which gives complete inhibition of hæmolysis when incubated without serum with the complement for 1½ hours. Usually this will be found to be about 0·05 c.c. of the 1 in 50 suspension. The strength of the fixation of complement obtainable in tuberculosis is undoubtedly feeble when compared with the Wassermann reaction, and we have therefore made attempts to reinforce the action of the antigen by the addition of various substances. Among these substances may be mentioned alcohol, but although alcohol will definitely increase the "sharpness" of the fixation, its addition introduces a non-specific element into the test. We have found that tubercle bacilli and alcohol will function as a "Wassermann" antigen, and will give a positive reaction with most cases of syphilis. We notice, however, that in the current number of the *Journal of Hygiene* Dudgeon has described excellent results from the use of an alcoholic extract of tubercle bacilli, while in the same journal Dudgeon, Meek, and Weir state that they "have met with no positive reaction among our control sera obtained from presumably healthy individuals of the middle class." It would be important to know whether these investigators have satisfied themselves that their alcoholic extract does not give a positive reaction in a series of cases of syphilis, since this disease in particular requires differential diagnosis from many forms of tuberculosis.

Results.

In order to estimate the value of a biological test it is necessary to make quite certain that the diagnoses of the conditions under examination are as far as possible accurate. For this reason our cases have been divided into these "pathologically certain" and these "clinically certain," and it may be assumed that the diagnoses in the former groups are the more strictly correct. From "tentative" cases we are unable to draw reliable conclusions.

Further, if a biological test is to be used for diagnostic purposes, it must be shown to be strictly specific within certain "group" limits. No positive results may be encountered outside these "group" limits, although negative reactions may be met with in undoubted examples of the condition under discussion. If, however, these negative results are very frequent, the test as a routine measure loses much of its value. We shall therefore endeavour to show not only that the fixation reaction is specific for tuberculosis, but also that it is positive in a large percentage of cases.

GROUP I., "*Pathologically certain*" *cases.*—In this group are included only those cases of tuberculosis in which there was definite histological or

TABLE I.—*85 Pathologically Certain Cases.*

Number of observation.	Diagnosis.	Result.	Degree.	Histological examination.	Bacteriological examination.	Remarks.
10	Pulmonary tuberculosis.	Pos.	++++	—	+	—
17	,, ,,	,,	+++	—	+	—
18	,, ,,	,,	++++	—	+	—
28	,, ,,	,,	++++	—	+	—
29	,, ,,	,,	++++	—	+	—
30	,, ,,	,,	++++	—	+	—
31	,, ,,	,,	++++	—	+	—
32	,, ,,	Neg.	++	—	+	—
35	,, ,,	Pos.	++++	—	+	—
37	,, ,,	Neg.	+	—	+	First stage.
38	,, ,,	Pos.	+++	—	+	—
39	,, ,,	,,	++++	—	+	—
41	,, ,,	,,	++++	—	+	—
42	,, ,,	,,	++++	—	+	—
45	,, ,,	Neg.	+	—	+	Third stage.
46	,, ,,	Pos.	++++	—	+	—
48	,, ,,	,,	++++	—	+	—
49	,, ,,	,,	++++	—	+	—
53	,, ,,	,,	++++	—	+	—
56	,, ,,	,,	++++	—	+	—
57	,, ,,	Neg.	0	—	+	First stage.
58	,, ,,	Pos.	++++	—	+	—
59	,, ,,	Neg.	0	—	+	First stage.
60	,, ,,	Pos.	++++	—	+	—
62	,, ,,	Neg.	++	—	+	Second stage.
64	Tuberculosis of ankle-joint.	Pos.	+++	+	—	—
70	Tuberculosis of kidney.	,,	+++	—	0	Guinea-pig inoc. pos.
72	Tuberculous cervical glands.	Neg.	++	+	—	—
73	Tuberculous cervical glands.	Pos.	++++	+	—	—
74	Tuberculous epididymitis.	,,	++++	+	—	Von Pirquet pos.
77	Tuberculous cervical glands.	Neg.	0	+	—	—
79	General tuberculosis.	Pos.	++++	+	+	—
80	Tuberculous mastitis.	,,	++++	+	—	—
91	Tuberculosis of kidney.	Neg.	+	+	—	—
98	Tuberculous pleurisy.	,,	0	—	0	Guinea-pig inoc. pos.
99	Tuberculous cervical glands.	,,	0	+	—	—
100	Tuberculous cervical glands.	Pos.	+++	+	—	—
102	Tuberculous cervical glands.	Neg.	0	+	—	—
104	Tuberculosis of kidney.	Pos.	++++	+	—	—
105	Acute tuberculosis of lungs.	,,	++++	—	+	—
106	Tuberculosis of hip-joint.	,,	+++	+	—	—
107	Tuberculosis of kidney.	,,	++++	—	+	—
108	Tuberculosis of cervical glands.	Neg.	++	+	—	—
109	Tuberculosis of kidney.	Pos.	++++	+	—	—
114	Tuberculous epididymitis.	,,	++++	+	—	—
118	Tuberculosis of Fallopian tubes.	,,	++++	+	—	—
121	Tuberculosis of axillary glands.	Neg.	0	+	—	—
122	Tuberculosis of cervical glands.	Pos.	+++	+	—	—
123	Pulmonary tuberculosis.	,,	+++	—	+	—
128	,, ,,	,,	++++	—	+	—
133	General tuberculosis of glands.	,,	++++	—	+	—
136	Tuberculosis of cervical glands.	Neg.	0	+	—	—
138	Tuberculosis of cervical glands.	,,	0	+	—	—
139	Tuberculosis of kidney.	Pos.	++++	—	+	—
140	Tuberculous cystitis	,,	++++	—	+	—
162	Pulmonary tuberculosis.	Neg.	0	—	+	—
180	Tuberculous disease of ulna.	Pos.	+++	+	—	—
181	Tuberculosis of cervical glands.	,,	+++	+	—	—
182	Tuberculous orchitis.	,,	+++	+	—	—
183	Pulmonary tuberculosis.	,,	+++	—	+	—
196	Tuberculosis of cervical glands.	Neg.	0	+	—	—
197	Tuberculosis of mesenteric glands.	,,	0	+	—	—
198	Tuberculosis of kidney.	Pos.	+++	—	+	—
199	Tuberculous pyelitis	,,	++++	—	+	—
200	Tuberculosis of kidney.	Neg.	++	—	+	—
201	Pulmonary tuberculosis.	Pos.	++++	—	+	—
204	Tuberculous epididymitis.	Neg.	++	—	+	—
205	Tuberculous peritonitis.	Pos.	+++	+	—	—
209	Pulmonary tuberculosis.	,,	+++	—	+	—
210	,, ,,	,,	++++	—	+	—

TABLE I.—*85 Pathologically Certain Cases (continued).*

Number of observation.	Diagnosis.	Result.	Degree.	Histological examination.	Bacteriological examination.	Remarks.
211	Pulmonary tuberculosis.	Pos.	++++	—	+	—
212	,, ,,	,,	++++	—	+	—
213	,, ,,	Neg.	++	—	+	—
214	,, ,,	Pos.	++++	—	+	—
216	Tuberculosis of mesenteric glands.	Neg.	++	+	—	—
220	Pulmonary tuberculosis.	Pos.	++++	—	+	—
243	,, ,,	Neg.	++	—	+	First stage.
250	Caries of spine.	Pos.	++++	+	—	—
262	Pulmonary tuberculosis.	Neg.	+	—	+	Third stage.
266	,, ,,	Pos.	++++	—	+	—
267	Tuberculosis of prostate.	,,	++++	—	+	(In urine.)
296	Pulmonary tuberculosis.	,,	++++	—	+	—
297	Tuberculosis of cervical glands.	,,	+++	—	+	—
331	Pulmonary tuberculosis.	,,	++++	—	+	—
346	Tuberculosis of epididymitis.	Neg.	+	—	+	—

++++ = Complete inhibition of hæmolysis. + = slight inhibition. Only those amounts of inhibition which may be represented by ++++ and +++ are considered positive. 0 = no inhibition of hæmolysis.

bacteriological evidence of tubercle. All with the exception of a few cases of pulmonary tuberculosis were patients attending a general hospital.

An analysis of the above 85 cases gives the following result:—

	Cases.	Positive.	Percentage.
Phthisis	43	33	76·7
Surgical tuberculosis (with the exception of tuberculous glands)	26	21	80·7
Tuberculous glands	16	6	37·5

GROUP II., "*Clinically certain*" *cases.*—In this series the diagnosis of tuberculosis rests on clinical examination only, as opposed to bacteriological or histological.

In this series the results were as follows:—

	Cases.	Positive.	Percentage.
Phthisis and pleurisy ...	18	10	55·5
Surgical	42	30	71·4

GROUP III., *Tentative cases.*—The sera of 74 cases in which the diagnosis of tubercle was purely tentative were examined, and of these 18 were positive. The positive results included cases of pulmonary fibrosis, pleurisy, enlarged cervical glands, ulceration of bladder, synovitis, persistent pyrexia, &c.

GROUP IV., *Controls.*—The control cases, 87 in number, were taken without any selection and included a great variety of diseased conditions in addition to normal individuals. All were negative with the exception of 3 cases, these being 2 cases of leprosy and 1 of Addison's disease. In leprosy such a result is to be expected, while Addison's disease is frequently tuberculous in origin. The sera of 18 syphilitic patients with positive Wassermann reactions were tested and all reacted negatively; this is very important, as with tuberculin as antigen syphilitic patients frequently react positively.

In the face of these controls the reaction must be regarded as being highly specific.

The Diagnostic Value of the Reaction.

Even though our experience with this reaction is not very great, it is possible to draw certain conclusions with regard to its value. The reaction is

TABLE II.—*30 Clinically Certain Cases.*

Number of observation.	Diagnosis.	Result.	Degree.	Remarks.
217	Pulmonary tuberculosis.	Pos.	++++	—
248	Peritonitis and pleurisy.	,,	++++	—
249	,, ,,	Neg.	0	—
260	Tuberculous peritonitis.	Pos.	++++	—
234	Tuberculosis of hip-joint.	Neg.	++	—
269	Tuberculous abscess of groin.	Pos.	+++	—
272	,, peritonitis.	,,	++++	—
273	Spinal caries.	,,	+++	Abscess.
274	Tuberculosis of cervical glands.	,,	+++	—
276	Tuberculosis of knee.	,,	++++	—
278	,, hip.	,,	++++	Two years' duration.
279	,, knee.	,,	+++	—
280	Tuberculous peritonitis.	,,	+++	Operation.
286	Tuberculosis of hip.	Neg.	0	Abscess; no tubercle bacilli.
287	Caries of spine.	,,	0	Abscess.
288	,, ,,	Pos.	+++	—
290	Tuberculosis of kidney.	,,	++++	—
291	Pulmonary tuberculosis and pleurisy.	Neg.	0	No tubercle bacilli in sputum.
293	Pleural effusion.	Pos.	++++	—
295	Pulmonary tuberculosis.	Neg.	0	No tubercle bacilli in sputum.
298	Pleural effusion.	Pos.	+++	—
299	Tuberculous peritonitis.	Neg.	0	No tubercle bacilli.
301	Caries of spine.	Pos.	++++	—
10	Tuberculous meningitis.	,,	++++	Von Pirquet pos.
20	,, periostitis.	,,	+++	—
22	Tuberculosis of hip-joint.	,,	++++	—
24	,, trochanter.	,,	++++	—
25	Caries of spine.	Neg.	+	—
52	Pulmonary tuberculosis.	,,	0	No tubercle bacilli in sputum.
65	Tuberculosis of knee.	Pos.	++++	Von Pirquet pos.
66	Tuberculous choroiditis.	Neg.	0	,,
92	General tuberculosis.	Pos.	++++	—
132	Tuberculosis of knee.	,,	++++	—
137	,, ,,	Neg.	0	Old case.
141	Caries of spine, &c.	Pos.	++++	—
203	Tuberculosis of hip-joint.	,,	+++	—
206	Tuberculous os calcis.	,,	++++	—
207	Tuberculosis of hip-joint.	,,	++++	—
208	,, ,,	,,	+++	—
214	Pulmonary tuberculosis.	,,	++++	—
125	,, ,,	,,	++++	—
151	Tuberculosis of knee.	,,	+++	—
217	Psoas abscess.	,,	+++	—
237	Tuberculosis of tarsus.	,,	+++	—
240	Pulmonary tuberculosis.	,,	+++	—
242	,, ,,	,,	++++	—
302	Tuberculous peritonitis.	Neg.	0	—
303	Tuberculous osteomyelitis.	Pos.	++++	—
317	,, peritonitis.	,,	+++	—
318	,, ,,	,,	++++	—
320	Pulmonary tuberculosis and pneumothorax.	,,	+++	—
326	Pleural effusion and laryngitis.	,,	++++	No tubercle bacilli.
332	Tuberculous peritonitis.	,,	+++	Von Pirquet pos.
335	,, epididymitis.	Neg.	0	—
336	Psoas abscess.	Pos.	++++	—
337	Tuberculous peritonitis.	Neg.	0	—
339	,, ,,	,,	0	—
341	Pleural effusion.	,,	++	—
342	,, ,,	,,	0	—
346	Tuberculous epididymitis.	,,	+	—

specific in that a positive result indicates tuberculosis with certain group exceptions. We are well aware that in the future if these tests are carried out extensively several patients will be found to give a positive reaction when no evidence of tuberculosis is available, but such sporadic results will have little weight as evidence against the specificity of the test. As with the Wassermann reaction in syphilis, it will be possible for a particular group of persons to assert that the method gives too many positive results, with the full knowledge that their allegation cannot be controverted. The controls, the so-called "certain non-syphilitic individuals," do not, of course, exist, and therefore it is not possible to *prove* that persons who have not syphilis or tuberculosis do not give positive complement fixations. The belief in the specificity of these tests merely rests upon an intelligent appreciation of probabilities. If the tubercle reaction is compared with the Wassermann reaction a great difference is at once apparent. Everyone has not syphilis, and therefore the reaction of the mass of the population is negative, but practically everyone has or has had tuberculosis, and yet the reaction of the controls is not positive. It is found that a most trivial lesion which may even be overlooked in the post-mortem room will give a positive Wassermann reaction, but in the case of tuberculosis the lesion must be of considerable dimensions before the reaction can detect it. A caseous bronchial gland will not give a positive reaction; indeed, the common affections of the cervical glands will usually yield a negative result. On the whole we have come to the conclusion that a lesion in order to give a positive result must be of such dimensions as to constitute "disease," and require the intervention of the physician or surgeon. We look upon the positive reaction, therefore, as indicating "active tuberculosis."

It will thus follow that the complement fixation test is of much greater value than the cutaneous reaction for instance. This latter indicates a state of hypersusceptibility to tubercle, and such a state may be present even though the lesion is quiescent or cured. It is no indication of "active tuberculosis." When a particular condition is under examination and is suspected of being tuberculous a positive von Pirquet reaction will be of relatively little value, since so many adults are sufficiently tuberculous to give a positive result. A positive complement fixation will, however, strongly support the suggestion that the condition is tuberculous because it indicates active tubercle, and there is always a certain improbability that one individual is suffering from two complaints at the same time. This method of argument must, nevertheless, be utilised with great care. It is true that when a Wassermann reaction is positive it is extremely probable that any lesions found are due to syphilis. Certain well-known exceptions to such a generalisation of course exist, but it is certainly common practice to assume the syphilitic nature of every lesion unless distinct evidence to the contrary is available. That such a method of argument is seldom wrong is merely due to the fact that syphilis is a relatively rare disease. When, however, the general population is largely tuberculous, it must frequently happen that an actively tuberculous individual is afflicted with some other non-tuberculous disease, and therefore the complement-fixation reaction must always be used for regional diagnosis with the greatest circumspection, and it would appear that this test, however perfected, can never attain to the great practical value of the Wassermann reaction.

In conclusion, we must express our thanks to the staff of the London Hospital for the supply of material, and in particular to Dr. Cecil Wall. To Dr. H. M. Turnbull we are indebted for the diagnoses and histological examinations in many cases.

PART II.—IN SANATORIUM PRACTICE.

Technique.

The technique conformed closely to that of the original Wassermann reaction, and it was so arranged that each of the reagents used in the test—viz., serum, antigen, complement, haemolytic amboceptor, and blood—was contained in 0·5 c.c. of fluid, so that the total volume in each tube was 2·5 c.c. The serum-antigen-complement was allowed two hours in the incubator at 37° C. for fixation to occur, and after the addition of the

amboceptor and blood one hour in the incubator was allowed for lysis to take place. Of course, all the preliminary titrations were carried out in a similar way as regards the time allowed and the temperature.

After the final incubation the tubes were placed overnight in the ice-chest and the results read off on the following morning. In reading the results in the definite cases of pulmonary tuberculosis only the faintest tint of colour in the supernatant fluid was allowed; anything more than this was called negative. On this account it is probable that a certain number of weakly fixing sera have been put down as negative.

Of the constituents of the test only the antigen requires detailed description, as the value of the reaction depends on the suitability and proper dosage of the antigen. The other factors only require a slight explanation.

1. *Serum.*—The serum under investigation was always inactivated by heating at 56° C. for half an hour, and was used in a quantity of 0·1 c.c. Quantitative tests with diminishing amounts of the serum were frequently employed.

2. *Complement.*—The complement was obtained from a single guinea-pig on each occasion. The blood was drawn the evening before, and after clotting the serum was allowed to separate spontaneously. A titration was carried out each time before use.

3. *Hæmolytic amboceptor.*—In the great majority of the cases this has been an anti-sheep serum, but occasionally an anti-ox serum was employed. The latter may, perhaps, be preferable in the cases in which a large amount of natural amboceptor for sheep blood cells is present in the serum. Two and a half times the minimal lytic dose of the amboceptor was employed in the test.

4. *Blood.*—This was always a 5 per cent. suspension of washed blood.

5. *Antigen.*—The antigen employed has been a freshly made emulsion of a young culture of tubercle bacilli in salt solution. The strength of this emulsion was 1 : 500, the bacilli being weighed moist after having been scraped off the surface of the glycerine egg medium. This emulsion has always been made up immediately before use and has not been sterilised in any way either by heat or chemicals. As far as the comparative antigenic value of different strains of tubercle bacilli is concerned I have not found any marked differences, but it is advisable to select a strain which grows quickly in a moist easily emulsifiable layer. On this account the rapid growth on a glycerine egg medium is superior to the growths obtained on glycerine agar or on glycerine bouillon. The moist growth on glycerine potato has given good results, but as a rule is not so valuable as a young growth on glycerine egg.

I think that the emulsion ought to be made up each time immediately before use, as the keeping properties of such an antigen are doubtful. In comparative experiments carried out with a fresh and a stored antigen on the same sera, at the same time and with the same complement, I have always obtained better and sharper results with the fresh emulsion. This has been the case even when the stored antigen was only a week old.

It is necessary to carry out a titration of the antigen each time before use, and the usual method of doing this is to take a fixed dose of complement (generally twice the minimal lytic dose), and to titrate the antigen with this. For the actual experiment the antigen is then usually taken in a quantity equal to half of the largest dose which does not show any trace of "Eigenhemmung" in the titration. This method, as a rule, gives excellent results in connexion with tuberculosis, but occasions arise when the "Eigenhemmung" is so marked that one is forced to use a very minute amount of antigen in the actual fixation experiments, if unspecific summation effects are to be avoided, and I have found that such small amounts of antigen are not sufficient to cause specific fixation in the presence of a weakly binding serum. This phenomenon of "Eigenhemmung" was for a long time a source of difficulty, and it was only when the same antigen was titrated with several complements that it was recognised that it was the guinea-pig serum which was at fault and not the antigen. This difference in complements is important, and is not shown at all in the ordinary titration of the complement. A serum may be very potent in its complementing power, and yet have such a capacity for being absorbed by an emulsion of tubercle bacilli that it is almost useless for complement-fixation work if the titrations are only carried out in the ordinary way. Although complements of this kind are only occasionally met with, it is necessary to have some other method of titration which will enable us to use a large dose of antigen without any fear of unspecific fixation. I think that I have overcome this difficulty by titrating the complement in the presence of a fixed amount (0·5 c.c.) of the antigen, and in this way estimating the amount of complement absorbed by this quantity of antigen. Then, in the examination of sera, a slight increase (say 20 per cent.) of the amount of complement necessary to bring about complete lysis in the titration is used, the dose of antigen remaining the same. Occasionally, also, I have titrated the complement in the presence not only of a fixed dose of antigen, but also of a normal inactivated serum. When this procedure is adopted it is not necessary for the actual experiment to increase the titre dose of complement, but the method is more difficult in actual work because normal sera differ in their effects, some increasing, others definitely decreasing, the "Eigenhemmung" of the antigen. Possibly the use of a "pool" of a large number of normal sera would be free from this objection, and might make the selection of the proper dose of complement simpler and more accurate. When this freshly made emulsion of tubercle bacilli is used as the antigen good results may be obtained whatever method of titration is adopted, but either of the last two methods will give more consistent results, and will enable one to avoid those occasions when all the sera come out negative owing to the very minute dose of antigen which must be employed. Kotzewaloff has lately emphasised this difference in complements in connexion with the Wassermann reaction, but it is even more important when working with tuberculosis.

Results.

Using the technique described above, a number of cases of pulmonary tuberculosis has been examined, with the results shown in the subjoined tables.

A fifth table consists of healthy persons. In all, the serum from 52 healthy persons was examined on 187 occasions and a negative result was obtained on each occasion.

TABLE I.—*Cases of Pulmonary Tuberculosis with Tubercle Bacilli present in the Sputum.* (The cases are arranged in groups according to the Turban classification.)

Groups.	Number of cases.	Complement fixation.	
		Positive.	Negative.
I.	91	79 (88·6 per cent.)	12
II.	260	233 (89·6 ,,)	27
III.	116	92 (79·3 ,,)	24
Totals	467	404 (86·5 ,,)	63

TABLE II.—*Suspected Cases of Pulmonary Tuberculosis but without any Tubercle Bacilli in the Sputum.* (The diagnosis of tuberculosis was supported in each case either by the opsonic index or by a focal reaction to subcutaneous injections of tuberculin, or by both.)

Number of cases.	Complement fixation positive.	Complement fixation negative.
13	9	4

TABLE III.—*Suspected Cases, as in Table II., but where the Diagnosis of Tuberculosis was Negatived by the Opsonic Index and by the Absence of any Focal Reaction to Tuberculin.*

Number of cases.	Complement fixation positive.	Complement fixation negative.
47	1 (?)*	46

* This case gave only incomplete fixation at first. Three days after the last injection of tuberculin (for diagnosis) the fixation result was completely negative, whilst 14 days later it had again become positive.

TABLE IV.—*Containing a Number of Cases which were at first Suspected of being Tuberculous.*

Cases.	Complement fixation.
Sarcoma of lung.	Negative.
Carcinoma of larynx.	,,
Malignant growth in mediastinum.	,,
Carcinoma of liver.	,,
Carcinoma of stomach.	,,
Mediterranean fever.	,,
Aortic regurgitation.	,,
Pyelitis (bacilli coli).	,,

In addition to the results given in the above tables, a number of sera from cases of pulmonary tuberculosis has been examined with other antigens. Although the technique otherwise has been the same as that described, the results are very much inferior to those obtained when a fresh emulsion of tubercle bacilli is used. These antigens were (1) the T.O.I. of Koch, as used in the Institut für Infektionskrankheiten, Berlin, and for which I am indebted to Stabsarzt Dr. B. Möllers; and (2) saline extract of pulverised tubercle bacilli, both alone and with the addition of alcohol or cholesterin.

The saline extract was prepared by emulsifying pulverised tubercle bacilli in salt solution (1 grm. of powder in 1 litre of a 0·85 per cent. salt solution), digesting at 50° C. for 24 hours, and afterwards for 48 hours in the ice-chest, with frequent shaking. The emulsion was then centrifuged and finally filtered through paper. The almost clear filtrate was used as the antigen, alone and also with additions of alcohol and cholesterin.

The results were as follows. 1. With the T.O.I. (Koch) as antigen, out of 50 cases the complement fixation was positive in 18, or 36 per cent., and negative in 32. 2. With the saline extract as antigen, out of 14 cases the complement fixation was positive in 4, or 28·5 per cent., and negative in 10. 3. With the saline extract plus an addition of absolute alcohol as antigen, the alcohol being added in the proportion of 1:60, out of 9 cases the complement fixation was positive in 5, or 55·5 per cent., and in 4 it was negative. 4. With the saline extract plus an addition of cholesterin as antigen, the cholesterin being added as a 1 per cent. alcoholic solution in the proportion of 1:60, out of 19 cases the complement fixation was positive in 8, or 42·1 per cent., and in 11 it was negative. A comparison of these results with those obtained when using a freshly made emulsion of tubercle bacilli as antigen, indicates the definite superiority of the latter.

Value of the Reaction in the Diagnosis of Pulmonary Tuberculosis.

Taking into consideration the high percentage of positive results in cases of pulmonary tuberculosis (with tubercle bacilli present in the sputum), and the fairly definite conformity between the positive results and the ultimate diagnosis in suspected cases, in seems fair to hold the view that, in such suspected cases, a positive finding is of considerable value in establishing a diagnosis.

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CONWAY AND PENMAENMAWR ISOLATION HOSPITAL.—It has always been the custom for the patients who are sent to the Conway and Penmaenmawr joint hospital to be attended by their own medical attendants, for which service a fee of one and a half guineas weekly is paid by the respective district councils. The joint hospital board recently discussed the desirability of altering this arrangement and engaging the services of a local practitioner who for an annual sum should attend those patients who were not themselves prepared to pay for attendance by their own medical attendants. It was pointed out by the medical officer of health, Mr. G. L. Travis, that there might be difficulty in persuading patients to go to the hospital if the medical attendant was also in private practice in the district, so it appears probable that no alteration will be made in the existing arrangements, which are said to have worked satisfactorily hitherto.

SEPSIS IN THE RECOGNITION AND NON-RECOGNITION OF SYPHILIS.

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THE very great importance of sepsis as a complicating factor to the pathological and clinical manifestations of syphilis to the patient and his relatives, his doctors, and also to the human race at large, is admitted. First we may consider in brief detail the subject in the various aspects.

(*a*) As regards the teaching of knowledge of syphilis. At hospitals students are taught to recognise syphilis from the examples of septic syphilis brought to their notice by their teachers. The septic factor in syphilis exaggerates its characters and furnishes some new ones of so great importance that the great text-books have taken such septic characteristics as illustrative of the syphilitic nature of the lesion. For instance, what is more widely accepted and taught to students than that the induration of a chancre is characteristic of it? But the hardness of a chancre is only seen typically when it is septic. Put that chancre on the skin or finger instead of under the septic prepuce and there will be much less, perhaps little or no, induration. Yet the lesion is a chancre and syphilitic. The induration is, therefore, very largely a sign of the accompanying septic inflammation and not of the syphilis. This is an example of how the student is taught to recognise much in syphilis by its septicity and not by its specific characters. With such teaching can he be expected to recognise a clean chancre when he sees it? Hence when the student becomes a doctor he has not been taught to recognise syphilis in the more cleanly class amongst whom he may largely practise. This suggests that the scarcity of syphilis seen amongst the middle and upper classes in general practice may be due to its not being recognised. And such patients as show the results of untreated syphilis—e.g., general paralysis of the insane—come from that very class.

(*b*) As regards the medical man. He may not recognise "aseptic" syphilis, though he is probably familiar with the manifestations of septic syphilis such as he has seen at hospital in his student days and recognised in his post-graduate career.

(*c*) As regards the treatment. I suppose there are few diseases which, if recognised early, are more studiously treated and more uniformly yield good results from treatment than syphilis. The progress of modern knowledge of the treatment of this disease has been remarkable. If only the disease is recognised it can be efficiently treated. It can now be seen clearly how much of the clinical success attainable depends on the recognition of the disease so that no sufferer can remain untreated.

(*d*) As regards the relatives and the community. Syphilis which is not recognised and not treated patients may transmit both to this and to future generations. Then they appear with nervous diseases, such as locomotor ataxia, general paralysis of the insane, or other forms of insanity, and there is no history of syphilis. The histories of patients with negative statements regarding syphilis cannot be relied upon even though patently honestly given.

(*e*) As regards the patient. If belonging to better educated classes, the unfortunate patient is apt to pay a penalty for his cleanliness in the disease not being diagnosed and its nature overlooked. Consequently he has no treatment; or, in other words, his very cleanliness counts against him and his. The virtue which he undoubtedly has is not rewarded properly.

It would be possible, such as by pointing out how many cases of syphilis are recognised for the first time when general paralysis of the insane has declared itself, to multiply the number of examples to which the subject of this paper, the non-recognition of syphilis, has special reference. Reference need only be made in this connexion to the works of Dr. F. W. Mott. Realising that the infection of syphilis is frequently combined with other infections, a mixed infection resulting, and that different varieties of spirochætes may cause different varieties of disease, we begin to understand how it is that pathological tests, such as Wassermann's, so often give variable and doubtful results, and how mercury yields successful treatment in one case, half succeeds in another, and utterly fails in a third. Indeed, in different varieties of spirochætes are seen possible explanations for many clinical variations in the disease. It may be put in another way: we begin to see in what is clinically called "syphilis" many diseases which have similar characters. John Hunter is well known to have put together both syphilis and gonorrhœa. Now we separate them, but it would appear that both known diseases represent several imperfectly known diseases which posterity will differentiate just as surely as we have separated the one disease of John Hunter's time into at least two diseases.

At the present time, when there is sitting a Royal Commission on Venereal Diseases, it is proper that we should set "our house in order" and appreciate the fact that venereal diseases are the varying summation of mixed infections, and according to the predominant factor in that mixed infection they appear as syphilis, gonorrhœa, soft sores, phagedæna, and so forth, and that the septic factor accompanying the mixed infection, according to its degree, modifies the appearances of the predominant disease both clinically and pathologically. It is of the highest importance to patients, doctors, the public, and the legislators that these facts should be thoroughly appreciated. Let them also know that on account of their education doctors not being fully equipped fail to recognise syphilis when it is kept clean, or even aseptic, such as is found in the middle and upper classes. Hence this disease in the middle and upper classes is very apt to be untreated, and will claim its victims in later life.

With regard to syphilis in consulting practice, it is only the unusual which, so to speak, passes the practitioner and reaches the consultant, and the unusual often means simply the absence of sepsis.

Dr. David Watson, of Glasgow,[2] in his recent work on gonorrhœa has given us an idea of the number of organisms to be found in the preputial cavity. He says of the extensive flora present: "It will be seen that we have here a flora with a sufficiently mischievous potentiality requiring only the production of a lesion to give its pathogenic members their opportunity. Regular cleansing has a marked effect in reducing the numbers of these organisms and, on the other hand, phimosis favours their growth." Here is an illustration of how

[2] Gonorrhœa and its Complications, 1914, Kimpton, p. 179.

syphilis may be septic or relatively clean. In a more or less aseptic condition a primary sore may be nothing more than a granulating spot with little or no induration, which is slow to heal, with little or no secondarily enlarged glands—a condition which is easily overlooked, particularly on the not easily inspected genitalia of a female. Thus a chancre or primary sore is robbed of the chief features by which it is taught in medical schools it should be recognised. Indeed, I would go so far as to urge that every granulating sore which is slow to heal, and particularly when on a part liable to infection, such as a doctor's finger, should be suspected of being a primary syphilitic sore and examined for the spirochæta pallida. Indeed, it may be needful to make repeated examinations to prove the presence of the spirochæta pallida. To prove its absence the greater the number of examinations the greater the certainty.

Since it has been proved that the finding of the spirochæta pallida in the secretion of a sore shows its syphilitic nature, a search should be made for this organism in the discharge from a suspicious sore. It so happens that at the present time such an examination is not usually advised until the patient has been referred to a consultant. There is no reason why this should be so, and it would be better for the patient if it was done by his general practitioner. I have found chancres on the finger, nose, tonsil, skin, and inside the urethra, where the condition had not been suspected. But it is not always worldly-wise to prove the nature of such a disease in every case, provided the patients are treated and others are protected from the disease. To have the presence or absence of the spirochæta pallida demonstrated is simpler and less expensive to the patient than to have a Wassermann test done, the reaction of which cannot be expected until the secondary stage has commenced.

To recapitulate, an "aseptic" condition of a primary sore may so mask its nature as to render it and the bubo quite unrecognisable; its nature may be suspected from its slowness in healing; its pathology may be proved by the demonstration of the presence of the spirochæta pallida.

In the secondary stage of syphilis it has long been recognised, "as in a glass darkly," that an additional septic infection makes the secondary symptoms and signs very much worse. For instance, it has long been advised that a subject with primary syphilis should have the mouth and teeth attended to by a competent dentist or the secondary symptoms in the mouth will be much worse. As a striking criticism on smoking, for the same reasons it has long been advised that the practice should be discontinued. Certain it is that the tremendous crops of secondary rashes and condylomata seen in hospital patients are not often seen in consultant practice. Indeed, but for a few transient spots and perhaps a slight transient sore throat, the secondary stage of syphilis may pass away within a day and may very easily be unrecognised.

At this stage it is easier to have a Wassermann reaction demonstrated positive than to find the spirochæta pallida in the sparse secondary signs. But just as the primary stage of syphilis may pass unnoticed in the well-kept and cleanly subject, so may the secondary stage pass unnoticed. In consequence there is nothing to interfere with the transmission of the disease to any offspring. Syphilis without outward lesion is not easily transmitted to the same generation.

In the tertiary stage there is a similar state of things. In hospital practice gummata are usually very obvious and easily diagnosable from their size, shape, the presence of a wash-leather slough, &c. In the generally less septic people of private practice a gumma is often a shallow clean ulcer with a well-defined margin, roughly circular in shape and with sharp margin; its base is formed of red healthy granulations, no slough is present, the sore is slow to heal, and when it does so easily breaks down again and again, unless iodide of potassium has been given. I could give examples, save that the details might be inconvenient, of private patients whom I have seen in consultation with unusually competent practitioners—old hospital officers—where persistent symptoms yielded to iodide of potassium, syphilis having been previously unsuspected.

At the present time, if the Wassermann test is negative, the fact is relied upon by many to demonstrate that syphilis is absent. Conversely a positive Wassermann test is held to show the presence of syphilis. Yet when a sample of a patient's serum is sent to several independent pathologists instances have been known where some have said that syphilis was certainly present, while others have been as equally certain that it was not. Hence there is an enormous personal factor in the interpretation of Wassermann's reaction. So much so that no reliance can be placed on the result unless unanimously confirmed by several pathologists working independently. Evidence from repeated examinations by the same pathologist is, as a rule, less worthy of trust.

Even in cleanly subjects tertiary syphilis, when suspected, is easily recognisable, and much could be done to prevent the spread of the disease if only all syphilitics had tertiary syphilis. But only a percentage of those infected show such manifestations. In the tertiary stage Wassermann's blood reaction is positive, and the spirochæta pallida has been demonstrated to exist in gummata. The latter observation is very important, because hitherto it has been taught that the tertiary stage is not contagious. But if the spirochæta pallida is present it must be contagious.

From these observations it will be seen that in the more cleanly classes of the community syphilis can be quite overlooked or not recognised in its primary, secondary, or tertiary stage; and consequently its transmission may be unchecked and its dissemination unimpeded. When we are first qualified we see but little of the disease. As we grow older we see more and more, and we appreciate that it exists untreated in many houses. In this, syphilis is similar to insanity, the spring and the winter of the disease meeting.

In the very places where the medical student is taught to recognise syphilis the superadded septic factor predominates, making the primary sore hard and characteristic, and its bubo obvious; the secondary signs are multiple and patent, and the tertiary signs glaringly unmistakable. When that student qualifies as a medical man he practises amongst more cleanly and relatively aseptic people, where the primary sore may be easily overlooked, the secondary signs are sparse, and only a proportion of the sufferers get gummata; yet it is his business and duty to recognise, treat, and prevent the transmission of the disease.

From such considerations as these it is easy to understand that some instances of syphilis, both acquired or congenital, go unrecognised and are transmitted unchecked through the community.

Harley-street, W.

THE IMPORTANCE OF A VERY THOROUGH EXAMINATION IN CASES OF FOREIGN BODY ALLEGED TO HAVE BEEN SWALLOWED OR INHALED.

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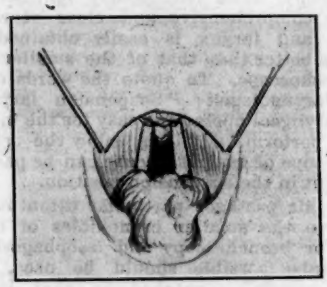
THIS paper is written with the purpose of calling attention to the serious results which may arise from delay or failure to recognise the impaction of a foreign body in the air or food passages. A few of the cases, seen or recorded, are briefly recited below, and clearly indicate what frequently happens.

CASE 1.—On July 3rd a little girl, aged 7, was sent to me by Dr. J. D. Rolleston, of the Grove Fever Hospital, who suspected a foreign body in the air passages. Four months before I saw her she swallowed a rabbit bone and was taken to a hospital casualty department. As there were neither symptoms nor signs of the presence of the bone after the examination of the throat she was sent home, and the mother was told to bring the child again if anything untoward occurred. Three and a half weeks later the child returned with cough, stridor, and dyspnœa, and she was admitted and treated for bronchitis for three weeks and then discharged as improved. One week after her discharge she was said to have laryngeal diphtheria and was sent to the fever hospital. The symptoms and signs were stridor, croupy cough, aphonia, and recession of the chest. The fauces and epiglottis were clean, but the diphtheria bacillus was present in the faucial cultures. Two doses of antitoxin were given with improvement. As the stridor and aphonia persisted and the breath became offensive a foreign body was suspected.

The child was discharged from the fever hospital on July 2nd, four months after the alleged swallowing of the rabbit bone, and sent to Charing Cross Hospital. At that time she looked thin and undersized, and the original symptoms were marked. Her mother repeatedly stated that the stridor, cough, and loss of voice were present before she swallowed the bone. Examination of the larynx at the first attempt was difficult; the stridor and dyspnœa increased when the child cried, and only a fleeting glimpse of the glottis was obtained. I was inclined to diagnose recurrent laryngeal paralysis from pressure of mediastinal glands, as the case appeared to be identical to two cases of that nature previously seen, and there was considerable enlargement of the cervical glands. However, at a second examination of the larynx some 10 minutes later a better view was obtained, and a greyish-white object, surrounded by granulation tissue, was seen in the glottis, and I felt confident that this was the lost rabbit bone. The child was admitted, and the case dealt with by Killian's suspension method under chloroform, ♏ viii. of syrup of codeine having been given one hour before the commencement of the anæsthetic. The bone (see Figs. 1 and 2) was found lying in the glottis with the posterior sharp point firmly imbedded in a mass of granulation tissue on the posterior commissure and the shorter anterior point buried in the epiglottis. The vertical projection was easily seized in the forceps, and the anterior point of the bone was then disengaged and the posterior end pulled out. The whole operation was performed in less than two minutes, but during her recovery from the anæsthetic I kept the child in the suspension laryngoscopy position in order to watch the breathing and to ascertain whether the large mass of granulation tissues caused sufficient obstruction to necessitate either its excision or tracheotomy. No respiratory embarrassment occurred and recovery was rapid and uneventful.

FIG. 1.



Sketch of larynx made immediately after removal of bone.

FIG. 2.

Fragment of bone, actual size.

Professor Killian has stated that several cases of foreign body in the air passages have been mistaken for diphtheria and *vice versa*.[1]

CASE 2.—A few hours after the occurrence of the above I read the account of a similar case recorded by Dr. Dan McKenzie and published in THE LANCET.[2] A baby, aged 2, inhaled a rabbit bone into its larynx and was treated at a hospital for three months for bronchitis. Eventually the bone was successfully removed by suspension laryngoscopy.

CASE 3.—Before the invention of the present bronchoscope a girl, aged 3, was admitted to hospital with a temperature of 103° F. The parents said that one month previously she had contracted broncho-pneumonia, but they denied all possibility of the inhalation of a foreign body. The physical signs were limited to the base of the right lung and were definitely unilateral. After exploration of the chest with a needle empyema was diagnosed, and resection of a rib exposed a normal pleura. Ten days later the child died suddenly in less than half an hour with dyspnœa following a fit of coughing. A necropsy revealed a bean in the left bronchus with diffuse bronchiectasis of the right lung. The bean apparently had been coughed from the right into the left bronchus.

A case of sudden death from this cause has since been recorded, in which a foreign body was being extracted from the right bronchus when it slipped out of the grasp of the forceps into the left bronchus and killed the patient within a few minutes.

CASE 4.—A newsvendor inhaled a half-sovereign, and whenever he was "hard up" he would go to a hospital to see if it could be recovered. Nearly two years after its loss, and after visits to many hospitals, the coin was recovered from the right bronchus by Mr. Somerville Hastings at the Middlesex Hospital, but death occurred from pulmonary tuberculosis ten days later.

Many other similar cases could be cited, but it would waste too much valuable space to repeat them here. Enough has been said to emphasise the fact that mistakes are frequently made in these cases, and can easily be made. In children particularly foreign bodies appear to be tolerated in the larynx, trachea, or bronchi without causing suspicion. It frequently happens that a patient comes to the casualty with the history of having inhaled or swallowed something. There are no symptoms, and a superficial examination is negative; the patient is told to eat some bread or porridge and sent home. A foreign body in the larynx may produce laryngeal obstruction, and the condition

[1] International Congress, 1913, Section XV.
[2] THE LANCET, July 4th, 1914, p. 28.

resembles diphtheria or the various inflammations or paralyses of the larynx. The symptoms—hoarseness, aphonia, stridor, dyspnœa, &c.—are common to many such affections. If an object is impacted in a bronchus an obscure chest condition arises in which the physical signs are limited to one lung—usually the right. A provisional diagnosis of empyema may be made, or even bronchitis and broncho-pneumonia, although these two latter generally have bilateral physical signs. In adults there may be an offensive purulent expectoration, with loss of weight, fever, &c., symptoms which resemble pulmonary tuberculosis. Bronchiectasis resulting from the inhalation of a foreign body has been known to simulate phthisis. Where unexplained symptoms and signs occur which may be due to an unsuspected foreign body, especially if they are unilateral and in a child, a careful history should be obtained and due importance attached to an account of the inhalation of something. Skiagrams should be taken and the bronchoscope employed.

The previous cases concern the respiratory tract. Similar instances occurring in the œsophagus may be mentioned and are as follows.

CASE 5.—A boy, aged 9 months, swallowed a farthing. One month later he appeared to be unwell, wheezy, and frequently vomited. A skiagram showed the farthing in the position of the left bronchus. By œsophagoscopy the farthing was discovered in the œsophagus at the bifurcation of the trachea, and was easily extracted.

CASE 6.—A child, aged 5, swallowed a halfpenny. One week later an X ray photograph showed the coin in the gullet. It was removed by a skilled œsophagoscopist, but ulceration into the left bronchus had occurred, and the patient died from broncho-pneumonia on the next day.

CASE 7.—A halfpenny present for five years in the œsophagus ulcerated into the aorta causing sudden death. A similar case of a pin is recorded.

CASE 8.—Sir StClair Thomson reports the successful extraction of a vulcanite toothplate from the œsophagus after 2½ years. The patient had been X rayed and examined by bougies and the œsophagoscope at two other hospitals.[3]

I have removed by the œsophagoscope coins from the gullet which had been swallowed 8 days, 10 days, 17 days, 1 month, &c., previously—much too long a delay for safety. These are only a few examples of the cases which I have seen or heard of.

The serious results produced by the delay in extraction of foreign bodies can be avoided by more accurate diagnosis followed by adequate treatment, and in both respects we are now fully equipped. The history of the accident and the description of the lost article are always obtained, and I find that the patient frequently can accurately localise the foreign body. If it is out of sight by the ordinary examination of the pharynx and with the laryngoscope, an X ray photograph should be taken and the stools watched. Skiagrams, however, even of metal bodies, have been known to fail. If it is still unaccounted for, the gullet and air passages should be searched carefully by suspension laryngoscopy, œsophagoscopy, and bronchoscopy. If the presence of a foreign body in the air or food passages is in any way possible, there should be no delay in searching for it, and this opinion is supported by the record of the above cases.

The bougies and probang more often than not fail to detect a foreign body. They also, unfortunately, push it further down, making it more inaccessible, and may even push it through the wall of the œsophagus. Bougies have also burst through the œsophagus into the pleura, particularly if ulceration has occurred. The coin catcher has been known to tear the œsophagus, and in one case the instrument broke in the gullet, leaving the fragment behind, which caused the death of the patient. It is much simpler and safer to pass bougies or probes by the direct vision of the œsophagoscope.

Œsophagotomy for a foreign body should be extinct, as no difficulty has been experienced in extracting several toothplates, two of them having four teeth, by the same path as they entered, and with the aid of the œsophagoscope. In the case of a firmly impacted tooth-plate there are scissor forceps for use with the œsophagoscope to cut up the plates to facilitate extraction. When pins are swallowed they are very commonly passed per rectum, but should always be found, for I have known them to have become impacted in the bronchus or œsophagus. More frequently pins and fish-bones stick in the lower lobe of the tonsil, in the base of the tongue or pyriform fossa.

Owing to the ingenuity of Professor Killian, of Berlin, and others, a foreign body can be extracted from almost any position in the air or food passages with negligible danger to the patient and consequent saving of life. The mortality of patients with foreign bodies in the air passages in the laryngoscopic period was as high as 30 per cent. (Killian). Since the introduction of the bronchoscope only 3 out of 182 died (Chevalier Jackson).

If the object is in the pharynx or larynx—i.e., above the upper edge of the cricoid—suspension laryngoscopy is by far the easiest way of finding and removing it. One cannot be too enthusiastic in stating the merits of Killian's suspension laryngoscopy, more particularly for children, in which a comprehensive and clear view of the pharynx and larynx is easily obtained and is decidedly better than that of the smaller tubes of the bronchoscope. To quote the words of a well-known laryngologist: "Suspension laryngoscopy makes laryngeal operations easy for the man in the street to perform." If it is below the cricoid, the bronchoscope or œsophagoscope can be passed with the patient in the suspension position.

In the air passages particular attention should be paid to the smaller bronchioles of the right lung. For bronchoscopy and œsophagoscopy the largest tube possible should be used, and its progress carefully watched so that it is not allowed to slip past the foreign body, which in the case of the gullet may be hidden under cover of the lower edge of the cricoid cartilage, especially a flat object like a coin. In the œsophagus, at the bifurcation of the trachea, is another favourite spot for impaction, the gullet being slightly constricted by the aorta and left bronchus, a dangerous position for ulceration. The cardiac end of the œsophagus is also a probable site.

The technique of suspension laryngoscopy, bronchoscopy, and œsophagoscopy is not difficult. The instruments are well lighted specula which require gentle manipulation, and any surgeon could use them with success. Cases of impaction of foreign bodies are so common and the removal by the bronchoscope or œsophagoscope so efficient, that the method should not be confined to the specialist.

To summarise briefly. The cases recorded above show that it is easy to make an inaccurate

[3] THE LANCET, Jan. 4th, 1913, p. 16.

diagnosis and that the resulting delay may have serious consequences. The frequency with which these mistakes are made suggest that a very thorough examination should be carried out whenever articles are alleged to have been inhaled or swallowed, and that when the object is not found the bronchoscope and œsophagoscope should be employed. The more modern methods described above, which are not difficult to use, are far superior to the obsolete bougie, probang, or coin-catcher.

In conclusion, there is no class of case in medicine or surgery which gives greater satisfaction to those concerned than the successful removal of a foreign body which imperils the life of a patient or causes a long period of ill-health, resulting too often in death.

A CASE OF CONGENITAL ATRESIA OF THE BILE-DUCTS.*

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ALTHOUGH cases of this disease are not of extreme rarity, few records have been published on the pathological—more especially the microscopical—alterations that occur. In view of the fact that such details are much needed [1] I have called attention to this case.

The patient, a female infant, first came under observation in the out-patient department of the Victoria Hospital for Children in April, 1913, when aged 4 months. She had been jaundiced for the past three months; the motions were pale, and the urine stained her napkins. A rash was present, especially about the buttocks. Snuffles were observed. The liver was then much enlarged, but the spleen could not be felt. In July, 1913, she was admitted as an in-patient. The history obtained showed that at birth her colour was normal, but when three weeks old she became yellow. The motions were clay coloured from that time onward. The degree of jaundice varied from time to time, but was much more marked during the few weeks previous. After separation of the cord the umbilicus healed well. Feeding was artificial, with cows' milk and barley water. She vomited frequently from birth, and there had been profuse sweating for the past two weeks. The mother had had five other children who were all well, and one miscarriage six years ago. The condition on admission was fairly good, and she was fairly well developed. Jaundice was marked, the skin being deep yellow and the sclerotics very yellow. No abnormality was found in the heart or lungs. The liver was enlarged and reached two finger-breadths below the costal margin. A hernia had occurred through the umbilicus. The temperature was normal. No alteration was noticed during the next 14 days, and she was then discharged.

In October a little free fluid was found in the peritoneal cavity, and afterwards it gradually increased in amount until December, when she was again admitted to the ward. The jaundice was now very intense. The enormously distended abdomen caused considerable respiratory distress. Numerous distended veins were apparent in its anterior wall, and in them the blood flowed upwards. The peritoneal cavity contained much free fluid and the liver was felt to be enlarged, extending three fingers-breadth below the costal margin. The spleen, also much enlarged, extended the same distance on the other side. The ribs showed marked beading. Very numerous râles and crepitations were heard over the right side of the chest in front, but none elsewhere. The heart gave no abnormal physical signs. The anterior fontanelle was very large—enough to have admitted five fingers. No œdema was anywhere found. On the following day the infant was much worse, and râles were heard all over the chest. The temperature rose from normal to 101·6° F., and on the morning of the third day to 103°, when death occurred.

Post-mortem examination.—A deeply jaundiced infant, extremely emaciated. The abdomen was very distended, with large veins coursing over it. On opening the belly a large quantity of bile-stained fluid escaped. The alimentary canal presented no abnormal appearances. The mesenteric glands were enlarged and dark-coloured. The liver weighed 12 oz. The surface was nodular, the nodules being small. It was firm in consistence and tough on section. Its colour was a very deep green. A cut surface presented a mottled appearance. The strands of fibrous tissue stood out plainly, somewhat paler than the rest of the substance. They cut the organ up into small islets, about 1 mm. in diameter. These were circular, the circumference being a deep green colour, while the centre was paler and yellowish. The fibrous tissue was much greater in amount at the hilum where the strands were of great thickness, gradually becoming narrower as the periphery of the organ was reached. The hepatic ducts were completely obliterated, and at a very short distance from their junction faded away into the connective tissue of the gastro-hepatic omentum, so that they could not be traced to the duodenum; not even a fibrous cord remaining to represent them. The gall-bladder was merely a fibrous cord deeply buried in the liver substance. Like the common bile-duct, the cystic duct was lost in the gastro-hepatic omentum, and could not be traced to its junction with the common bile-duct. The vessels, hepatic artery and portal vein, were normal. The spleen weighed 3 oz. It was firm in consistence, but presented no abnormality on section. The splenic vessels were patent and healthy. The pancreas, kidneys, and adrenals were all normal. There was very marked œdema of the retroperitoneal and perirenal tissues. Both lungs were deeply congested and œdematous. The heart was normal.

Microscopic examination.—The organ is extremely and markedly fibrosed. The normal lobulation is entirely lost and the hepatic cells show all stages of degeneration—all that is left of them in some places being a granular débris. Those which retain some vitality are generally crowded with small brownish granules of bile pigment. There is a slight degree of fatty degeneration. Some of the cells contain minute fatty droplets (demonstrated by Sharlach R), but in no case is any great distension of the cell brought about in this way. The fatty degeneration is confined to the hepatic cells and cannot be found in the cells of the pseudo-bile canaliculi. The nuclei are round and large as a rule, though some have become irregular in shape. They do not take up much stain and are poor in chromatin. There is no evidence of proliferation of the liver cells. Towards the centre of the organ the cells are somewhat healthier in appearance and the deposit of pigment less.

Strands of fibrous tissue are present throughout the organ, forming a fine network, in the meshes of which are small isolated groups of liver cells. The individual cells are also surrounded and separated from each other by fine fibrils of connective tissue, so that a mixed condition is present, a perilobular and a pericellular cirrhosis coexisting. Towards the periphery some of the fibrous-tissue cells are younger in appearance and show some evidence of active proliferation, but towards the centre of the organ they are older and show no such signs. The process has, however, reached an almost stationary stage. There is no active inflammatory change nor any leucocytic infiltration. In the fibrous tissue very numerous mast cells can be demonstrated by Pappenheim's methyl green pyronin stain or by polychrome methylene blue. They vary much in shape, contain somewhat deeply staining nuclei which are eccentric in position, and show in their cytoplasm closely packed, coarse, orange-red granules. Generally they are seen on or very near a vessel-wall. They are never seen among the liver cells proper. They occur in small numbers near the hilum, becoming numerous towards the periphery where in some sections great numbers are seen. No plasma cells have been found. There is very little subcapsular fibrosis. The vessels appear throughout normal. The finer bile-ducts—those at the periphery of the organ—are patent and many are filled with inspissated bile. Pseudo-bile canaliculi are present and are often a feature of the part under examination. As the hilum is approached they increase in number while the bile-ducts disappear, and within a short distance

* Shown before the West London Medico-Chirurgical Society on Jan. 16th, 1914.

of the hilum none can be found, nor any bile. Often the fibrous tissue can be seen surrounding and cutting off groups or columns of liver cells from the periphery of a lobule, which then present all the appearances of pseudo-bile canaliculi. The wall of the gall-bladder is much thickened and composed of young connective tissue cells. It is very vascular, and contains several large vessels—arteries and veins—the walls of which are normal. The cavity remains, though very small, and is lined by a healthy endothelium of cubical cells. The round ligament presents no abnormality.

Upon the etiology of this interesting condition the present case throws no light—syphilis, as usual, appears to play no part, and no hereditary influence is shown. On turning, however, to its pathogeny one or two points may be considered. Dr. Rolleston[2] believes that the fault is with the mother, that from her a toxin is derived which, passing through the placenta and its vessels, reaches the liver, where it causes a cirrhosis. The primary fœtal condition is thus an irritative change in the liver. But some of the blood passes on by the ductus venosus into the general circulation. Later it returns by the hepatic artery to the liver. Here the toxin is excreted in the bile and sets up a descending cholangitis. He also suggests that the toxin may be analogous in its action to toluylenediamine. The action of toluylenediamine has been very fully described by Hunter.[3] He finds that animals under the influence of this drug suffer from a descending cholangitis involving primarily the bile-ducts at their origin. Later the whole of the bile radicles and the smaller ducts are simultaneously affected. Sometimes the process stops here, though in other cases the catarrh may extend to the common bile-duct and even to the duodenum itself. The point I wish chiefly to emphasise is that the inflammation affects first and with the greatest intensity the finest bile capillaries.

From this description I think it fair to conclude that the excretion of any other irritating substance into the bile would produce a cholangitis affecting first and chiefly the smallest bile channels. But in the case under consideration the exact reverse holds—the finest bile capillaries are patent and show less affection than the largest vessels. *Prima facie*, then, an ascending cholangitis would appear the more likely lesion. Is this possible? A gastro-enteric inflammation travelling from the duodenum up along the common bile-duct would be capable of producing all the appearances found here. The inflammation would be most intense the nearer it was to the duodenum, and diminish in intensity in direct proportion to its distance therefrom or to its approach to the periphery of the liver. Furthermore, the resistance of the patient's body may to some extent limit the spread. The post-mortem appearances indicate a stationary or almost stationary condition; and also the fact that life was prolonged for 12 months points to some such protective reaction.

The existence of a toxin is, at the best, purely conjectural; its presence or absence cannot be demonstrated. May it not, then, be supposed to be a constituent of a pathological liquor amnii? It is known that the fœtus in utero ingests quantities of this liquid which might thus reach the duodenum.[4] The origin of such a body in the liquor amnii would appear to be maternal, passing through the placenta as do some of the normal constituents of the liquid.[5] It is difficult to imagine any process by which the fœtus could produce in utero a toxin inimical to itself. The presence of such a pre-natal affection would, moreover, lay the patient more freely open to the post-natal attack of other pathogenic agents.

Cirrhosis is in adult life probably due to a toxin elaborated in the gastro-intestinal tract.[6] At the same time Lissauer[7] finds that cirrhosis of the liver can be produced by ligation of the common bile-duct or its branches without other cause. The changes produced are, in his opinion, identical with those found in human cirrhosis. But he also finds that experimental data prove the change following ligature of the duct to be largely influenced by infective processes. Thus in this case it seems possible that the same agent which by direct extension causes an ascending cholangitis, at the same time, by absorption and circulation in the blood through the liver, initiates a cirrhosis which is aided and increased later by the obliteration of the ducts.

Thomson,[8] in his original paper on this condition, believed that a necessary factor in its pathogeny was a maldevelopment by which the ducts were narrowed; while the imposition of an inflammatory swelling on such a developmental constriction produced complete obstruction. In a later article[9] this view, though not contradicted, was dismissed as having nothing in its favour. Yet later[10] he revives it and states that it must be held to play a part. The cirrhosis he considers secondary to the biliary obstruction. The present case adds no data on either side.

In the clinical course and appearances of this case nothing is remarkable except the duration of life. Hitherto it has been said that no child proved to have this complaint has ever lived 11 months,[11] whereas another month must now be added to that period. The average length of life is 2½ months. Finally, the development of ascites in this condition is rare. I have to thank Dr. J. W. Carr and Dr. A. C. D. Firth for the clinical notes of this case and for permission to use them.

Bibliography.—1. Thomson: Allbutt and Rolleston's System of Medicine, 1908, vol. iv., Part I., p. 104. 2. Rolleston: Diseases of the Liver, &c., p. 643. 3. Hunter, Wm.: The Action of Toluylenediamine, Journal of Pathology and Bacteriology, vol. iii., 1896; Allbutt and Rolleston's System of Medicine, 1908, vol. iv., Part I., p. 41 et seq. 4. Eden: A Manual of Midwifery, p. 39. 5. Jellett: A Short Manual of Midwifery. 6. Rolleston: Loc. cit., p. 195. 7. Lissauer, Max: Quoted by Brit. Med. Jour., April 25th, 1914, p. 922 b. 8. Thomson: Edinburgh Medical Journal, vol. xxxvii., Part II., p. 734. 9. Thomson: Allbutt and Rolleston's System of Medicine, 1897, vol. iv., p. 256. 10. Ibid., 1908, vol. iv., Part I. 11. Thomson: Clinical Examination and Treatment of Sick Children, p. 173.

VACCINATION IN IRELAND.—The Registrar-General for Ireland has recently issued a return dealing with the statistics of vaccination of children born in Ireland in 1912. It discloses a grave and growing neglect of vaccination. Of the total number of children born in 1912 it appears that only 66·3 per cent. have been successfully vaccinated; of the remainder, 3·3 per cent. were postponed on account of ill-health, 0·1 per cent. were insusceptible of vaccination, 5·7 per cent. died without being vaccinated, 3·1 per cent. were unaccounted for, and 21·5 per cent. were returned as defaulters. The disquieting factor is that the number of defaulters is increasing in accelerated proportion. In 1905 82 per cent. were vaccinated, as against 66·3 per cent. in 1912. There is no doubt that the falling off in vaccination is due to the active campaign against vaccination, for it is precisely in those districts where the campaign is most active that the falling off is most marked. In Leinster the vaccinations represented only 45·8 per cent. of the births registered. In county Wexford, where the campaign began, there were only 301 children successfully vaccinated, while there were 1700 defaulters, and in the neighbouring county of Wicklow there were 464 successful vaccinations and 587 defaulters. A grave responsibility rests with the Local Government Board for permitting the boards of guardians to connive at the constant breaches of the vaccination laws.

Reviews and Notices of Books.

Aspects of Death in Art and Epigram.

By F. PARKES WEBER, M.A., M.D. Cantab. London: T. Fisher Unwin and Bernard Quaritch. 1914. Pp. 461. Price 10*s.* 6*d.* net.

THIS work is an expansion of a previous work by the same author, entitled "Aspects of Death and their Effects on the Living as Illustrated by Minor Works of Art," a review of which appeared in THE LANCET of Dec. 17th, 1910. The expanded edition contains a far greater number of pictures and of illustrations from Latin and other authors dealing with death.

The original work contained 58 pictures, while the work now before us contains 125. The original introduction has been enlarged from 26 pages to 84 mainly by giving a more detailed description of the engravings, carvings, pictures, and poems mentioned in the original book, and a new section dealing with sepulchral monuments and inscriptions. Three new chapters treat respectively of the attributes and pomp of death, of funerals and the fear of death, and of skulls and animated skeletons in grotesque art. Another addition is a selection of quotations from the various mediæval poems "De Contemptu Mundi," wherein we note that Dr. Weber refers to St. Bernard's (of Clairvaux) "Rhythmus de Contemptu Mundi," beginning "Homo miser cogita, Mors omnes compescit," a fine but little known poem, remarkable for its subtle change of metre in the passage dealing with the world's great ones who have passed away:—

> "Quo Caesar abiit, celsus imperio,
> Vel Dives splendidus, totus in prandio?
> Dic, ubi Tullius, clarus eloquio,
> Vel Aristoteles, summus ingenio?
>
> Tot clari proceres, tot rerum spatia,
> Tot ora præsulum, tot regna fortia,
> Tot mundi principes, tanta potentia,
> In ictu oculi clauduntur omnia."

Death is now presented, not to this nation only, in far other guise than art and epigram, and the last stanza will come home to many hearts with sad insistence.

In primitive Christianity there was nothing horrible in death, as is evident by the numerous inscriptions preserved in the Lateran Museum. The painful aspects of death came in with the Middle Ages, and the sixteenth century perhaps gave death the worst aspect of any time. Not that death, even in the Middle Ages, was always horrible, though inexorable—witness his personification in the old play *Everyman;* but from 1600 to 1800 few except enlightened souls could regard death as a friend in the sense that Schubert illustrates in his wonderful setting of "Der Todt und das Mädchen." We are grateful to Dr. Weber for a most interesting book upon a subject which must always have an interest for humanity.

The Prevention of Dental Caries and Oral Sepsis.

By H. P. PICKERILL, M.D., Ch.B., M.D.S. Second edition. London: Baillière, Tindall, and Cox. 1914. Pp. 374. Price 12*s.* 6*d.* net.

Dr. Pickerill, in the present edition, has included an account of additional experiments made by him and gives an interesting account of observations made on a thyroidectomised rabbit with a view of ascertaining the influence of thyroid insufficiency on caries. The observations are interesting but not conclusive. The author expresses the opinion that tough food tends to narrow the jaws, as the muscles brought into play in the mastication of such food act in this direction. The book shows evidence of the large amount of experimental work carried out by the author, the results of which are mainly negative in character. We think he would do well to give more consideration to the views expressed by other authors in papers published prior to the publication of this work.

Manual of Anatomy, Systematic and Practical, including Embryology.

By A. M. BUCHANAN, M.A., M.D., C.M. Glasg., F.R.F.P.S. Glasg., Professor of Anatomy in Anderson's College, Glasgow, &c. With 631 illustrations, mostly original and in colours. Second impression. University Series. London: Baillière, Tindall, and Cox. 1914. Pp. 1559. Price 21*s.* net.

THIS is a new impression, hardly a new edition, of Buchanan's Anatomy, for no very important alterations have been made pending the issue of a second, thoroughly revised, edition. As we reviewed the first impression, which appeared in two volumes, in THE LANCET of Oct. 13th, 1906 (p. 1000), and June 1st, 1907 (p. 1496), in some detail, it is unnecessary here to do more than state that many of the errata and omissions noted in the first edition have been put right—particularly we may mention that a notice of the auriculo-ventricular bundle of His is now included, as well as one of the islands of Langerhans. The special point about this book is that it claims to be the only English text-book of anatomy retaining the old nomenclature, which is still official, and speaking generally seems to be much preferred by students as being more simple and quite correct enough for all practical purposes. A large number of terms of the Basle nomenclature is given for reference, however, in an appendix. The book will retain the popularity which it has gained.

Sclero-Corneal Trephining in the Operative Treatment of Glaucoma.

By ROBERT HENRY ELLIOT, M.D., B.S. Lond., Sc.D. Edin., F.R.C.S. Eng., &c., Lieutenant-Colonel, I.M.S. Second edition. London: George Pulman and Sons, Limited; The Ophthalmoscope Press. 1914. Pp. 187.

THE second edition of this book has been called for within a year. We found reason to review the first edition favourably. We then said: "It is too early yet to cry 'Eureka,' but in our opinion trephining, as advocated and carried out by Colonel Elliot, offers the best hope of success in combating chronic glaucoma." The experience of another year has not led us to modify the opinion we then expressed.

The enthusiasm which pervades the writings of Colonel Elliot and many other ophthalmic surgeons is both a good and a bad sign, for it tends to obscure the critical faculties. On the whole, the results of the operation have been favourable, but for our own part we are not prepared to admit that it is by any means the last word on the question. It has occasionally been the experience of surgeons that the operation has failed to stop the progress of the chronic glaucoma, though sometimes a second operation of the same nature has proved successful. A number of cases of late infection after trephining and several cases of detachment of the choroid, some of which proved disastrous, have been recorded. It is still too early to know the ultimate

fate of the method, but we continue to hold that it is the most serviceable yet devised for this intractable disease.

The second edition is larger than the first by 70 pages. We do not notice any radical change in technique, and the new matter deals chiefly with the results, opinions, and suggestions of ophthalmologists from all parts of the world. We have no hesitation in saying that the book should be carefully studied by every ophthalmic surgeon.

Handbuch der Vergleichenden Physiologie.

Herausgegeben von HANS WINTERSTEIN. Lieferungen 42 and 43, pp. 1447–1760. Band III. *Physiologie des Energiewechsels und des Formwechsels.* Mit 40 Abbildungen im Text. Jena: Gustav Fischer. 1914. Price 5 marks.

IN No. 42 Professor R. F. Fuchs continues his admirable disquisition on the colour changes and the chromatic cutaneous functions of animals. An exhaustive account is given as to changes in colour which are produced through the eyes. It requires nearly 90 pages to describe what is known as to the colour changes in amphibia alone. The remainder of the text (45 pages) deals in the same exhaustive and lucid manner with the reptiles. The subject is continued in No. 43, in which Professor Fuchs completes his most interesting, elaborate, and painstaking account. This article should prove of great interest to all zoologists as well as physiologists. It is the most complete in any language. About one-half of the text is devoted to the colour and markings of insects by Professor W. Biedermann, of Jena, than whom no one is more capable of dealing with such a fascinating subject. The exposition is at once attractive and masterly.

MISCELLANEOUS VOLUMES.

THE child builds up the State, and when the birth-rate is falling in all civilised countries his quality no less than his quantity becomes of particular importance in both sexes. The child remains a child until he reaches an age when he is more or less able to act independently of the guidance of grown-up people, and each group of ages—the infant, the child on the border of school age, and the child after leaving school—presents its own difficulties of treatment. These groups again subdivide themselves according as we have to deal with the orphan, the waif and stray, and the mentally defective, so that the whole question of the best management of childhood is very complicated. In the class for which it is necessary to provide homes, such as the destitute and the mentally defective, among the questions to be considered are the merits or demerits of existing institutions, the advantages or otherwise of the boarding-out systems, recreation, inspection, and so forth, while the inadequacy of provision for special classes, such as epileptics and cripples, must not be forgotten. Again, there is the question of feeding and proper dietary. All these things are ably dealt with in a valuable report, *Voluntary Homes and Orphanages* (published at Salisbury House, London Wall, E.C. Price 6*d.*), by a special committee of the Social Welfare Association appointed to inquire into the welfare of poor children, which provides much information of a kind that probably cannot readily be procured elsewhere. It deals with 82 homes within the radius of Greater London, and the appendices include a classified list of homes and a useful diet table drawn up by Dr. Robert Hutchison.——With regard to the question of dealing with children after they have left the elementary school, Germany appears to be ahead of this country in recognising the need for fitting such children for work useful to the community. In this connexion *The Problem of the Continuation School and its Successful Solution in Germany: A Consecutive Policy*, by R. H. BEST and C. K. OGDEN, B.A. With an Introduction by Dr. GEORG KERSCHENSTEINER (London: P. S. King and Son. Price 1*s.*), may be studied with interest and profit. In England large sums of money are annually spent, and some of it badly spent, on elementary education, and many boys after being employed in "blind-alley" occupations go to swell the army of casual labourers and unemployed. The last-mentioned book shows how this wasteful state of things may to a considerable extent be avoided. For example, it is stated that in Munich, a city of nearly 600,000 inhabitants, all boys, with the exception of 8 per cent., when leaving the elementary schools at the age of 14 go straight to definitely taught trades and attend a trade continuation school for four years. The illustrations in the book point to the thoroughness with which this form of education is carried out.

A little book whose purpose may be summed up in its closing words—"health is a duty. A man's first duty"—is *Pride of Body* (London: The St. Catherine Press. Pp. 63. Price 1*s.* net), by HUGH DE SÉLINCOURT. It is a brightly written argument for physical training gladly undertaken as a personal, family, and racial duty, and concludes with seven very simple exercises reduced to their lowest terms from standard systems, especially Müller's. This little book may attract many to the practice of physical and moral discipline who are dismayed at the complexity of more elaborate systems.——*Why Early Death?* (same publishers. Pp. 54. Price 6*d.* net) by M. C. SYKES, M.D., F.R.C.S. Edin., consists of 35 sets of moral physiological precepts for the most part sound enough but of no special originality, enunciating the principles of hygienic living. The author discusses the question when one is to retire from active professional or commercial work. His answer amounts to this: never, unless you have ample interests to give you continued occupation and ample means to pursue them.——There are so many books nowadays dealing with dietetics and food preparation for popular use, some of them written in support of particular dietetic theories, vegetarianism, fruitarianism, and what not, that they must be bewildering to the public. The new edition of the *Apsley Cookery Book* (London: J. and A. Churchill. 1914. Pp. 268. Price 3*s.* 6*d.* net), by Mrs. JOHN J. WEBSTER and Mrs. H. LLEWELLYN, is stated to contain 503 recipes for the "uric acid-free diet." Without entering into any discussion of the uric acid-free theory of dietetics, we may state that a perusal of the recipes themselves holds rather fascinating possibilities for the housewife, and one need not be a "martyr to uric acid" thoroughly to enjoy many of the dishes here presented. They certainly contain sufficiently varied and pleasant things to satisfy everyone. Moreover, the recipes for the most part are consonant with a very limited financial budget. The hints on cooking are obviously the production of one practised in the art.

JOURNALS AND MAGAZINES.

Quarterly Journal of Medicine. Edited by WILLIAM OSLER, J. ROSE BRADFORD, A. E. GARROD, R. HUTCHISON, H. D. ROLLESTON, and W. HALE WHITE. Vol. VII., No. 28. July, 1914. Oxford: At the Clarendon Press. London, Edinburgh, New York, Toronto, and Melbourne: Humphrey Milford. Subscription price 25*s.* per annum; single numbers 8*s.* 6*d.* net each.—The contents of this number are: Aggressins in Appendicitis and Some Other Varieties of Peritonitis, by A. D. Gardner. The question of aggressive action has been studied in a number of peritoneal exudates. The property of aggressiveness is regarded as the direct consequence of a profuse multiplication of bacteria. Dr. Gardner concludes that in the treatment of some varieties of peritonitis closer attention should be paid to the question of bacterial multiplication, and he suggests that a discriminating use of bactericidal chemicals, such as ether and colloidal silver, might be of great value in the surgical treatment of peritonitis.—The Leukæmias: An Analysis of Fifty-nine Consecutive Cases, by P. N. Panton, H. L. Tidy, and G. H. Pearson. Some interesting observations are given upon 59 cases of leukæmia, 16 of which are classed as acute myeloid, 29 as chronic myeloid, 8 as acute lymphoid, and 6 as chronic lymphoid leukæmia. The authors find that the clinical picture of leukæmia varies with the acuteness or chronicity of the disease, and not with the lymphoid or myeloid origin of the cells. They find that the effect of treatment on the acute cases has been negligible, in the chronic lymphoid cases very slight changes have been

observed, while in the chronic myeloid cases some have changed little and others to a remarkable extent. Some interesting tables and a coloured plate accompany this article.—The Fragility of the Red Blood Corpuscles in Physiological and Pathological States, by Alfred Douglas Bigland. A method is described for determining the fragility of red blood corpuscles towards the hæmolysing agent saponin, and the state of the corpuscles in various abnormal conditions is studied. The resistance of the washed red corpuscles is diminished in jaundice, increased in all the anæmias, except pernicious anæmia, in which it is normal or slightly diminished. In exophthalmic goitre and paroxysmal hæmoglobinuria the corpuscular fragility is normal, in polycythæmia it is increased.—Study of a Case of Very Prolonged Cheyne-Stokes Breathing, by W. Hale White, J. H. Ryffel, E. P. Poulton, W. Johnson, and R. A. Chisolm. An interesting case is recorded in which Cheyne-Stokes breathing lasted for six months and probably for much longer. The case was carefully studied, and certain observations showed that the blood was of abnormal acidity and that this abnormal or increased acidity was not due to lactic acid. Histological examination of the respiratory centre showed certain changes which were regarded as evidence of exhaustion of the nerve cells in it, but the authors are of opinion that at present it is impossible to state if these changes, which are similar to those found by other observers in such cases, are the result or the cause of the Cheyne-Stokes breathing.—The Importance of Functional Activity in the Ætiology of Nervous Diseases, by W. Johnson. An interesting study of Edinger's theory that symptoms in nervous diseases are in a large part exhaustion phenomena and closely associated with the nature of the patient's activities is given. Dr. Johnson concludes that there is a close association between a patient's symptoms and the nature of his activities, and that various poisons, although widely different in nature, tend to produce clinical conditions which nearly approach each other.—Blood Pressure Estimations in Disease by the Oscillatory and Auditory Methods, by G. Spencer Melvin and J. R. Murray. Considerable discordance in results was found on comparing the records of blood pressure obtained by the auditory method, the tactile method, and the graphic method of the Erlanger sphygmomanometer. The writers prefer the auditory readings and regard them as the most reliable.—The Formation of β-Iminazolylethylamine in the Ileum of certain Constipated Subjects, with a Note on the Urine in Constipation, by N. Mutch.—Family Cerebral Degeneration with Macular Change (so-called Juvenile Form of Family Amaurotic Idiocy), by Frederick E. Batten. Some cases are recorded demonstrating that there is a form of familial cerebral degeneration which occurs at a later age than "family amaurotic idiocy," and has no race proclivity. The typical features are loss of intellectual faculties, loss of vision, and loss of motor power. The paper is illustrated by some admirable plates.—Critical Review: The Diagnosis of Pancreatic Disease, by Arthur F. S. Sladden. A valuable summary and criticism of the various tests proposed for the discovery of pancreatic disease are given.

British Journal of Surgery. Vol. II., No. 5. July, 1914. With 105 figures (6 in colours) and a frontispiece. Pp. 188. Issued quarterly, 25*s*. per annum. Bristol: John Wright and Sons, Limited.—In the present issue is an editorial article on the need for coöperation in surgical enterprise, which foreshadows the formation of an association of British surgeons, and this is followed by a short notice of Sir James Paget, with a reproduction of Millais's painting. A long and exhaustive article by R. C. Elmslie deals, under the name of fibro-cystic disease, with the subject of benign cysts of bones. Many illustrations of this disease from the museums of the various London hospitals are given. Finkelstein writes on the surgery of the spleen, based upon a personal experience of 66 cases of splenectomy. Loughnane has collected a number of cases of renal sarcoma in children, in which the after-history has been followed up; of these, only 3 out of 35 presented long periods of survival after nephrectomy. A new operative treatment for certain cases of the outward dislocation of the patella is described by Whitelocke, who uses the gracilis tendon transplanted into the ligamentum patellæ to counteract the outward displacement. Gunn and Whitelocke make some interesting observations on the movements of the vermiform appendix and the way in which these are affected by various drugs.[1] Gwynne Williams describes the localisation and treatment of acute osteomyelitis in adults. A practical article by Hogarth Pringle on the treatment of open fractures, based upon 230 observations, shows what good results are obtained by immediate operative treatment in these cases. Childe contributes a paper on a modified form of panhysterectomy in which the division of the tissues is made by the actual cautery, and gives a list of 18 cases treated by this method. Other articles of interest are: A Visit to the Surgical Clinics of Sir John Bland-Sutton and W. J. Mayo; A Critical Review of Pyelography, by Thomson Walker; A Review of Contemporary French Surgery, by Professor Tuffier; and an account of some instructive mistakes and rare cases.

Knowledge.—In the August number Mr. Israel Cohen continues his articles on the Physical Condition of the Jewish Race. He points out that as the Jews practise vaccination regularly they suffer less from small-pox than other people. They are less liable to pneumonia but, being mostly town folk with indoor occupations, are very liable to bronchitis and asthma, while heart disease claims many victims. The position of the Jewish child in regard to disease is strikingly favourable, great devotion and care being exercised by the mother. On the other hand, the frequency of mental diseases among Jews is from two to five times higher than among Gentiles. Among other articles in this issue is one on wireless telegraphy in aeronautics, which has a particular interest at the present time, as the illustrations accompanying it include a map showing the chain of wireless telegraph stations round Germany, to determine the position of air-ships by night or during fog.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

HEROGEN.

(THE BRITISH DRUG HOUSES, LIMITED, 20 TO 30, GRAHAM-STREET, CITY-ROAD, LONDON, N.)

ACCORDING to our examination herogen is a malted food reinforced with lecithin. As much as 91 per cent. of the preparation, which is a dry powder of the colour of pea flour, is soluble in cold water. This is not surprising since the bulk of the food consists of malt sugar. Further results of analysis were as follows:—Moisture, 0·50 per cent.; mineral matter, 7·50 per cent. (containing 3·20 P_2O_5); proteins, 10·14 per cent.; fat, 3·05 per cent. On extraction with ether a yellowish oil was obtained which contained lecithin. The amount of lecithin in this oil was estimated to be 0·735 per cent. in the food, the phosphoric acid determination giving the figure 0·0735. The interesting contents of this food are the important amount of proteins which are largely soluble, a rich proportion of phosphates, and a definite amount of lecithin. The food is therefore of value chiefly in those cases in which it is desirable to augment a phosphorus and protein intake. The reparative power of lecithin is well-known, particularly in nervous diseases.

(1) "TABLOID" XAXA COMPOUND; (2) "TABLOID" COLCHICINE AND NUX VOMICA COMPOUND; (3) "SOLOIDS" SABOURAUD'S MEDIUM AND MICROSCOPIC STAIN TOLUIDINE BLUE.

(MESSRS. BURROUGHS WELLCOME AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

(1) The tabloid Xaxa compound presents a formula of admitted value. It contains acetyl salicylic acid combined with phenacetin and caffeine. This combination of antirheumatic, antipyretic, and analgesic agents will be appreciated. (2) Another useful

[1] THE LANCET, August 8th, 1914, p. 403.

formula is the tabloid colchicine and nux vomica compound, which contains, in addition to colchicine and the extract nux vomica, hyoscyamine and gentian. The combination is intended for the treatment of gout, the presence of nux vomica being regarded as counteracting any depressing effect of the colchicine. (3) "Soloid" Sabouraud's medium provides a very convenient method of preparing a culture medium. It takes up little space, and from it a clear firm medium is easily obtained. The organisms of favus and ringworm and the "bottle bacillus" are said to cultivate well in this medium. The soloid containing toluidine blue represents a recent addition to histological stains in this form. It provides a positively diagnostic stain for the diphtheria bacillus, but can be used also as a general agent in histology.

EURESOL HAIR TONIC.

(MESSRS. SANGERS, 258, EUSTON-ROAD, LONDON, N.W.)

We have already reported upon euresol, the active principle of which is the mono-acetate of resorcin. This substance appears to act as restrictor to the blood-vessels and as a stimulant to the epidermis. It possesses the advantage that, unlike resorcin, it does not colour the hair. Its application in seborrhœa and alopecia is interesting, and favourable results are recorded even with a short trial. Euresol has now been made the basis of a hair tonic. Apart from its stimulating action in promoting the growth of hair this salt of resorcin is an antiseptic of decided power.

WATERPROOF SURGEON'S APRON.

(MESSRS. ARNOLD AND SONS, GILTSPUR-STREET, LONDON, E.C.)

We have examined this material and have submitted it to certain tests, the results of which confirm its claims. We have submitted it to the action of a number of antiseptic fluids such as are used in surgical practice. The majority of the antiseptics tried appeared to have no action at all. Iodine produced a slight staining, and corrosive sublimate a grey colour. The material is certainly waterproof, while it is extremely pliable and soft to the touch. It appears to consist of a fabric with a rubberproof dressing on its serviceable side. Two samples submitted to us consisted of a thin delicate material and another of a stouter description. Washing with ordinary soap readily cleanses the material without injuring it or altering its desirable qualities. It seems to us to be an excellent material for surgeons' aprons, bed sheets, and so forth, in which a waterproof fabric is desirable.

BEEHIVE BRANDY.

(MESSRS. MACMINN, RICHARDSON, AND CO., ST. DUNSTAN'S BUILDINGS, ST. DUNSTAN'S-HILL, LONDON, E.C.)

This is a product of the Associated Vineyard Cultivators Company, and is said to have its origin in the genuine Cognac district. It has the characteristics of a fine delicate Cognac brandy, and the results of analysis in regard to secondary products show that it has the same composition. The results were as follows: alcohol by volume, 47·13 per cent.; extractives, 1·24 per cent.; mineral matter, 0·01 per cent.; volatile acidity reckoned as acetic acid, 0·03 per cent. The secondary products given in parts per 100,000 of alcohol present were as follows: aldehydes, 29; furfural, 1; higher alcohols, 108; ethers, 103. This brandy has a delicate characteristic flavour.

IODOSTARIN.

(THE HOFFMANN-LA ROCHE CHEMICAL WORKS, LIMITED, 7 AND 8, IDOL-LANE, LONDON, E.C.)

We have examined this compound in regard to its contents of iodine, and have found that the claim that it contains 47·5 per cent. of iodine in an active and available form is true. It occurs in the form of a tablet of a white colour. It is an organic combination of iodine, the element being associated with a fatty acid group of the higher series. In spite of the large quantity of iodine which it contains it is stated that the administration of this compound, even in large doses, does not cause iodism. Its indications are the same as for the ordinary iodides.

ROSKROW NATURAL WATER (RADIO-ACTIVE).

(W. MARTINDALE, 10, NEW CAVENDISH-STREET, LONDON, W.)

The essential property of the water is its radio-activity, and it is stated that its strength is 26 times as radio-active as the most powerful natural water so far examined in this country. Further, it is practically free from mineral matters. We found only 15·2 parts per 100,000, and these consisted practically of half sodium chloride and half calcium salts, including the sulphate and the carbonate. It is not a mere emanation water (niton), for it is stated that examination shows actual radium to the extent of 3·6 milligrammes per 10^6 litres. The emanation content in equilibrium with this would be on calculation 90 Mache units per 10 litres. Its use is suggested for promoting healthy metabolism, and sufferers from gouty affections are reported to derive benefit from it. In this connexion the non-mineralised condition of the water is probably of importance.

BRITISH MEDICAL ASSOCIATION.

EIGHTY-SECOND ANNUAL MEETING AT ABERDEEN.

THE SECTIONS.

GYNÆCOLOGY AND OBSTETRICS.

WEDNESDAY, JULY 29TH.

President, Dr. F. W. NICOL HAULTAIN (Edinburgh).

Discussion on the Treatment of Fibromyomata.

The PRESIDENT, in welcoming the members of the section, said that it was not his intention to deliver any introductory address. The subject which had been selected for discussion was of such importance that it would occupy fully the whole time allotted to it, and therefore he would call upon Dr. Archibald Donald to introduce the discussion forthwith.

Dr. ARCHIBALD DONALD (Manchester) said that the subject selected for discussion had always been of very great importance, and at the present time it was of more than usual interest because of the new views that had been brought forward, more particularly with regard to radiotherapy. In the time at his disposal it was quite impossible to deal with the matter in all its bearings, and he intended, therefore, to limit his remarks to certain points only. The treatment of uterine fibromyomata might be classified under the following headings: (1) Expectant; (2) palliative; (3) curettage; (4) operative; and (5) radiotherapy. As regards expectant treatment, it should be given up in all cases where a neoplasm was producing symptoms. It was also a mistake to think that relief from symptoms was always produced by the climacteric. In many cases this was not so, and various degenerations and other complications occurred, notably malignant changes. Even if shrinkage did take place, a fibroid occasionally became incarcerated from this very cause. Concerning palliative methods, he had nothing to

say beyond the fact that he had no faith in drugs in the treatment of fibromyomata. Curetting could not be recommended as a routine method, although one was sometimes tempted to employ this measure to check severe hæmorrhage at the time of the menopause and possibly avoid a more radical operation in an unfit subject. Operative treatment was to be preferred to-day before all other methods in the cure of uterine fibroids, and the speaker advocated the abdominal route in preference to the vaginal path. In fact, the latter should be abandoned except in exceptional cases such as a polypoid, submucous or sloughing tumour. The removal of large tumours per vaginam by "morcellement" was not good surgery, and even in the case of small tumours the abdominal route was to be preferred. Turning to the abdominal operations for fibroids, Dr. Donald advocated myomectomy whenever possible, and particularly during the childbearing age. Although the neoplasm was large it was often good practice to commence by enucleating the same, even if a hysterectomy was required later, since the subsequent operation was rendered much easier by this means. As regards the question of subtotal versus total hysterectomy in those cases where myomectomy was impossible, the matter must be left very much in the hands of the individual operator. Personally the speaker preferred the subtotal operation. Double oöphorectomy without removal of the uterus or neoplasm was useless and should not be performed. The risks of the operation were as great as hysterectomy or myomectomy, and the method was not curative. As regards mortality after hysterectomy for fibroids, the speaker submitted the following figures from his case-books:—

	Cases.	Deaths.
At the Royal Infirmary, Manchester ...	101	3
At St. Mary's Hospital	108	5
At nursing homes (private)	100	1
Total	309	9 (2·5%)

Of the 9 deaths 6 only could be really attributed to the operation, and included such causes as embolism (1 case), secondary hæmorrhage (1 case), peritonitis, septic (2 cases), and intestinal obstruction. Private patients appeared to have less mortality (1 per cent.) than hospital cases (2·3 per cent.), possibly because the general condition was defective in the latter from deficient feeding, housing conditions, &c. In discussing points of technique Dr. Donald advocated the "clamp" method and removal of the uterus before the application of any ligatures. He also deprecated the use of a continuous suture, since if one knot slipped the whole ligature became loose. Concerning the question of the removal of one or both ovaries, his own practice was to remove both, since the organs not infrequently became cystic or adherent if left. Furthermore, he was quite convinced that menopausal symptoms were not so severe after double oöphorectomy as had been commonly supposed. Of a long series of cases carefully investigated only 3 per cent. complained of acute symptoms. He firmly believed that the type of patient had much more to do with the question of a severe artificial menopause than the operation itself. With regard to the dangers after operation, the greatest risk to-day was undoubtedly that of thrombosis and embolism in very anæmic subjects. Sepsis was probably at the bottom of this unfortunate accident, and the important points in obviating the same could be grouped under two headings: (*a*) the most strict observance of every aseptic precaution known to modern science; and (*b*) the development of "team" work in operating. With reference to the employment of X rays in the treatment of uterine fibromyomata, Dr. Donald expressed himself as holding very strong views. He objected on many grounds to the routine use of the rays in these cases. In the first place, it was frequently extremely difficult and sometimes impossible to diagnose correctly the nature of a pelvic swelling. This was particularly the case with pelvic inflammatory masses, tense or solid ovarian tumours, sarcomata or adenomyomata of the uterus, carcinoma or sarcoma complicating a uterine fibromyoma, or a fibroid undergoing degeneration. Out of a series of 201 cases of uterine fibroids, 44, or nearly a quarter, were complicated by other lesions, and this appeared to be a very strong argument against the employment of radiotherapy as a routine method. Furthermore, sufficient time had not yet elapsed to show whether trouble, particularly degenerations of the growths, would occur later in those cases treated by X rays. Operation, should it become necessary subsequently, was likely to be more difficult and hazardous if any criterion was to be gathered from the experience of surgeons in the case of the thyroid. The mortality to-day after radical operations for fibromyomata was so small, and also the patient was relieved of her trouble once and for all, that the advantages which were said to accrue from radiotherapy appeared to be a very doubtful quantity. The only field in which the rays might have a use was to check hæmorrhage in cases of chronic metritis.

Professor GAUSS (Freiburg), in a paper communicated by Dr. A. MITCHELL (Aberdeen), honorary secretary to the section, said that it was now the custom at Freiburg to treat all cases of uterine fibromyomata by X rays rather than operation. The results appeared far to surpass those obtained by surgery, particularly as regards the question of mortality. If the figures were not modified the mortality risk after operation was practically always from 3 to 5 per cent. With radiotherapy, on the other hand, a fatality practically never occurred. The mortality was certainly below 0·5 per cent. When the method was first adopted at Freiburg it was only used in those cases where operation was contraindicated, particularly advanced degrees of anæmia. The good results obtained in these very grave cases stimulated further research which conclusively proved the excellence of the method. When first employed in 1906 the technique had to be discarded owing to the severe burns produced. In fact, radiotherapy was entirely given up in the case of fibroids for this reason. It was not until a method was discovered of throwing large doses of rays into the deeper tissues without the production of superficial burns that any success in this method of treatment was obtained. By the employment of filters and a system of "cross-fire" the desired end was attained. In spite, however, of the uniformly good results from the new technique the method did not receive any general attention from the body of the profession for fully five years. In Germany to-day, however, it was advocated in most clinics and was daily receiving fresh support. As regards the results obtained in a series of 400 cases of fibromyomata and "metropathie," the first 205 were of doubtful value inasmuch as the technique was continually being altered. In the last 195, however, the methods had never varied and the results had remained as good as previously. Thus in 169 cases complete amenorrhœa was produced, and in only 0·17 per cent. of the cases did the hæmorrhage recur. As a rule four applications of the rays sufficed to bring about the desired result. These, however, were usually augmented by a further two "consolation" sittings. Although the great majority of fibromyomata were suitable for, and should be treated by, radiotherapy, Professor Gauss did not recommend its employment in the following three groups: (*a*) submucous fibromyomata; (*b*) "sanious" neoplasms; and (*c*) where signs of acute compression were present.

Dr. E. HASTINGS TWEEDY (Dublin) thought that Dr. Donald had voiced the general opinion of the country as regards the general principles that he had laid down. He personally was quite in accord with what he had said. He had been particularly interested in the paper read from Professor Gauss, and although views from Germany could not be lightly dismissed he wished to lodge a definite protest against the employment of X rays in the treatment of uterine fibroids. He quite agreed with what Dr. Donald had said about the difficulty of diagnosis, and it must also be remembered that the mortality from malignancy complicating fibromyomata was 2 per cent.—quite as great, in fact, as that from operation. Where was the malignancy in the series of cases quoted by Professor Gauss? The speaker considered that there was a great danger in trifling with these cases with X rays. Furthermore, Professor Gauss had spoken about hæmorrhage as though it was the only symptom caused by fibroids and the only one that required treatment. It was a pity that he was not there to amplify the paper, which in its present form did not contain sufficient facts to make him enthusiastic on the method. As regards the selection of cases for operation, personally he would operate in every case in which symptoms were present. He thought that in the past they had been greatly misled by the hopes that had

been held out of cessation of hæmorrhage, diminution in size, and absence of degeneration after the menopause. As to the removal of both ovaries, Dr. Tweedy differed from Dr. Donald's views concerning the menopause. The moral effect of double oöphorectomy upon a patient was, in his opinion, a very important factor in the production of symptoms attributed to the artificial menopause.

Dr. J. NIGEL STARK (Glasgow) thought that practically all in this country were agreed upon the advantages of the operative treatment of fibroids. He emphasised what Dr. Donald had stated with regard to degenerations and malignant changes occurring after the menopause, and was quite averse to the employment of radiotherapy. In fact, he considered that some of Professor Gauss's statements were so extraordinary that it was impossible to place any reliance upon them, and for the present the British Medical Association would do right to pin its faith to operation in these cases. Dr. Stark advocated subtotal hysterotomy as the method of choice, and stated that in his own series of cases the mortality of this operation was a little over 2 per cent.

Professor MURDOCH CAMERON (Glasgow) thought that too much stress was laid upon the question of rubber gloves in the conduct of operations. Personally, he never used them, and he got quite as good results as other surgeons who interfered with the sense of touch by this means. He noted that Professor Gauss did not advise radiotherapy in the case of submucous tumours. If there was anything in the method why should it fail here? Professor Cameron concurred in the difficulty of diagnosis of uterine fibromyomata, and cited several instances in support of the thesis.

Sir JOHN W. BYERS (Belfast) emphasised the importance of strict asepsis in all operations for uterine fibromyomata and did not agree with the previous speaker's remarks on the question of gloves. He also drew attention to the improved methods of anæsthesia and the bearing these had upon the reduction of mortality in severe operations. His feeling towards X rays in the treatment of fibroids was one of honest scepticism. At the present juncture they did not know sufficient to condemn the method absolutely and it was necessary to "wait and see." Some years ago Apostoli boomed the electrical treatment in precisely a similar manner and time proved its true value. For the present he thought that it was the duty of the profession to recommend operation in all cases requiring treatment. If this was refused it was necessary to keep the patient under close supervision owing to the complications which so frequently and so rapidly developed.

Professor J. A. C. KYNOCH (Dundee) agreed that all fibromyomata which gave rise to symptoms were best removed by abdominal hysterectomy or myomectomy. He had completely discarded the vaginal route, and as regards abdominal hysterectomy he preferred the subtotal to the total operation as being simpler and therefore more rapid. The old objection as to the development of carcinoma in the cervical stump did not upon published facts and his own experience appear to have much weight. When possible he preferred to leave a portion of the endometrial tissue also, as advocated by Abel and Zweifel, and in this country by Alban Doran. He quite agreed with Sir John Byers's remarks upon the importance of a skilled anæsthetist. In his own cases he obviated shock by the previous administration of veronal, scopolamine, and morphia. He had recently had the opportunity of visiting Freiburg and seeing Professor Gauss's work, and he was not prepared to admit as some previous speakers had done that there was nothing in radiotherapy as applied to fibromyomata. At present there was no gynæcological clinic in Germany which did not possess the necessary equipment for this method of treatment. In some centres the method is used with caution and with good results. Probably at Freiburg it is employed to excess. Professor Kynoch thought that it would eventually be found to have a limited field of usefulness, and he certainly should not be antagonistic until he had heard more facts.

Professor B. P. WATSON (Toronto) was of opinion that radiotherapeutic treatment of uterine fibromyomata was simply "harking back" to the old days of double oöphorectomy, since it was through the action of the rays upon these organs that the favourable results were obtained. One of the strongest arguments against the method was the impossibility at present of knowing what changes would occur in fibroids as a result of the artificially induced menopause. As to the routine removal of ovaries in operations for uterine fibromyomata, the speaker thought that everything depended upon the condition of these organs. If they were diseased little need be anticipated in the way of an artificial menopause. With healthy organs, on the other hand, serious symptoms might develop.

Dr. C. E. PURSLOW (Birmingham) agreed with Dr. Donald as to the matter of technique and never employed the vaginal route. He also performed subtotal hysterectomy unless a cervical erosion was also present. In such cases he performed the total operation. He was glad to hear that Dr. Donald advocated the removal of both ovaries. This was his usual practice, and he certainly had had no reason to regret the same. In those cases where symptoms of an "artificial menopause" developed he thought that "suggestion" had frequently much to do with it. As regards the X ray treatment of fibroids he had had little experience. Certainly in one case the hæmorrhage had ceased and the tumour appeared to be diminishing in size.

Mr. H. BECKWITH WHITEHOUSE (Birmingham) also referred to the debated point of the removal of the ovaries. Where it was necessary to remove the whole uterus he was of opinion that best results were obtained when both organs were sacrificed. The ideal treatment, in his opinion, was to conserve both ovaries and a portion of the endometrium. From experiments that he had performed upon rabbits and described elsewhere he thought that a definite correlation existed between the internal secretion of the ovaries and the secretion of the uterine endometrium. The exact nature of this relationship was somewhat obscure, but for the present it certainly pointed to conservation of both endometrium and ovaries as being the ideal to aim at. With regard to the X-ray therapy advocated for fibromyomata he referred to the discussion between the combined sections of gynæcology and electrotherapeutics held at Brighton in July, 1913. Here Professor Gauss, in reply to a question, had definitely stated that fibroid tumours were reduced in size by the treatment quite apart from any question of the cessation of hæmorrhage.

The PRESIDENT said that the discussion had raised several points of very great importance. One of the most important points to decide was what patients should be operated upon. He certainly did not agree that every patient with a fibromyoma should be submitted to operation. As a matter of fact unless symptoms were present a patient very rarely came under observation. An exception to this occurred in the case of young women who were sterile. If the tumour was small an attempt might be made to relieve the sterility by other means, such as cervical dilatation. If this failed and the tumour was not causing other symptoms the decision as to operation should be left in the hands of the patient. If, on the other hand, a fibromyoma was causing well-marked symptoms it should be removed by all means. The relationship of these neoplasms to the menopause was somewhat complicated. It was uncommon for symptoms to arise *de novo* after the climacteric, and if hæmorrhage was present it usually pointed to malignant changes. Concerning the question of technique the President thought that the subtotal operation was to be preferred. He fully endorsed the value of gloves and other strict aseptic precautions in operating, and emphasised the importance of rapidity in technique in order to avoid shock. It was here that the value of a trained assistant was shown so conclusively. As to the question of the removal or not of both ovaries he had not fully made up his mind. His usual practice was to remove the organs in patients over 40 and to conserve them under this age. In a few cases he had transplanted ovarian tissue but had since regretted doing so, because upon more than one occasion he had had to remove cysts later, which had developed from the graft. As regards radiotherapy, the speaker drew a parallel with the electrical treatment of fibroids advocated in the past by Apostoli. When this method was first introduced it was good treatment owing to the high existing operative mortality (10–20 per cent.). To-day this mortality was reduced to 2 per cent., and therefore there was no place for a method which was so uncertain in its action. Recently Professor Haultain's assistant had visited Professor Gauss's clinic and he was disappointed in what he saw. The tumours did not disappear, and the method was in fact only a means of sterilisation and induction of an artificial menopause.

Dr. DONALD, in reply, said that in Professor Gauss's

absence it was perhaps unfair to criticise his views very strongly. At the same time, from a perusal of German literature there appeared to be an extraordinary diversity of views upon the question, and these were mutually destructive. With regard to the debated question of removal of the ovaries the whole matter turned upon what he would call the curse of gynæcology—viz., the eternal reasoning from theory to fact, rather than from fact to theory. Fact had conclusively proved to him that a patient was better without her ovaries when it was necessary to sacrifice the uterus. He referred his hearers to Dr. A. E. Giles's work upon the "After-results of Abdominal Operations," in which the point was discussed fully. Dr. Donald endorsed all that had been said upon the value of skilled anæsthesia in abdominal surgery.

THURSDAY, JULY 30TH.

Dr. HENRY JELLETT (Dublin), in opening a discussion on

The Management of Pregnancy and Labour in Contracted Pelvis,

said that from a clinical standpoint contracted pelvis might be divided into two main classes—symmetrical contractions and asymmetrical contractions. The former included two main groups—the simple flat pelvis in which the conjugate was the only diameter shortened, and the generally contracted pelvis showing diminution of all the diameters. Symmetrical contractions might be divided into four degrees based on what experience showed was the necessary treatment of each. In the first degree the true conjugate measured 3½ inches at least, and one might assume that the child would be delivered spontaneously if of normal size and the uterine contractions were sufficiently strong. In the second degree, with a conjugate measuring from 2¾ to 3¼ inches it might be assumed that delivery of a living child per vaginam was only possible if the size of the child was below normal or the size of the pelvis increased. In the third degree, the conjugate measuring from 2½ to 2¾ inches, spontaneous delivery through the pelvis of a viable child was impossible. In the fourth degree, with a conjugate below 2½ inches, delivery through the pelvis was impossible, even if the child be reduced by a destructive operation to the maximum extent, and therefore Cæsarean section was the only treatment possible, whether the child was living or dead. Since it was impossible to discuss the whole question in the time at his disposal, the speaker confined his remarks to a consideration of the treatment of contraction in the second degree, and contrasted in connexion with it delivery through the pelvis by the induction of premature labour or pubiotomy or symphysiotomy and Cæsarean section at full term. The advantages of induction were chiefly its ease in accomplishment and that usually a living child was obtained. On the other hand, the objections to induction were the risk of septic infection during the necessary manipulations, the uncertainly of the operation, and the fact that the child was small and naturally delicate. With regard to Cæsarean section, Dr. Jellett pointed out in its favour the simplicity of technique, the certainty which attended the operation, the absence of all laceration of the genital tract, the easy labour with quick recovery, and finally an improved fœtal prognosis. Nevertheless, certain definite disadvantages were present. In the first place, when once a Cæsarean section was done it would probably always have to be repeated in subsequent labours. The reason for this lay in the fact that in order to get the best results the operation must be done at the beginning of labour, and therefore no time could be allowed to see if the patient could deliver herself. Pubiotomy, therefore, in the speaker's opinion, appeared to be the operation of choice in this group of cases. It was not such a severe operation as Cæsarean section in a favourable case. Furthermore, it could be left until a late stage in labour and so give the patient every chance to deliver herself. The great advantage, however, lay in the fact that the operation tended to cause and practically always did cause a permanent enlargement of the pelvis. This allowed a patient in the majority of cases to deliver herself spontaneously in subsequent pregnancies. The disadvantages cited by Dr. Jellett were the possible laceration and injury to the surrounding tissues, the prolonged and painful labour, and the fact that the fœtal prognosis was worse unless the condition of the fœtus was very carefully watched. The speaker then brought forward tables showing the statistics of 19 cases of pubiotomy performed at the Rotunda Hospital by Dr. Hastings Tweedy or himself. All the patients recovered, and in all the child was born alive. These 19 patients had had 29 labours previously, which had resulted in a total of only 7 living children. Subsequent to pubiotomy 15 labours had occurred, resulting in 12 living children. Of the 3 deaths 2 were due to complications in no way associated with pelvic contraction. Regarding the operations 10 were uncomplicated. Of the remaining 9 laceration of the bladder occurred in 1, necrosis of bone in 2, labial hæmatoma and crural phlegmasia in 1, and external hæmorrhage from laceration of the vulval veins in 5. No subsequent alteration of or interference with locomotion was noted in any instance, even in the two cases complicated by osseous necrosis. The general conclusions formulated by the speaker were that in the second degree of contracted pelvis (1) pubiotomy was the operation of choice; (2) it was especially indicated in the case of young primiparæ; (3) Cæsarean section was indicated in the case of elderly primiparæ owing to the rigidity of the tissues and the risk of serious lacerations; (4) the induction of premature labour was only indicated under special conditions; and (5) craniotomy was only permissible when the child was dead.

Professor FRANK (Cologne), speaking in German, said that 100 years ago people tried by law to prohibit the operation of symphysiotomy as if it were an attempt to murder. To-day he thought that it was the most successful operation in the whole of midwifery and one that should be brought to the notice of every accoucheur, because it was so simple and free from danger. Nevertheless, the tendency appeared to be to regard it as more of historical than of scientific importance. This opinion was almost universal, and had its basis in the unfavourable results which attended the older methods. As regards the original technique the danger of severe hæmorrhage, septic infection of a hæmatoma, or severe laceration of the tissues was a very real one, and even masters of their art like von Rosthorn were unable to avoid all deaths. Professor Frank observed that in the subcutaneous method devised by him these dangers were eliminated. He then proceeded to demonstrate his operation by means of diagrams. Hæmorrhage was prevented by pulling the clitoris downwards from under the pubic arch by means of the left hand, whilst the actual division of the symphysis was performed with a bistoury. The second risk, infection, was obviated by the fact that the operation was completely subcutaneous. In fact, the external wound must not be larger than the breadth of the narrow knife, which was the only instrument employed. The speaker impressed on his hearers the fact that when the knife left the wound the operation must be entirely finished. The opening in the skin was immediately sutured with catgut and a hæmatoma prevented by compression. If care was taken not to operate in cases of too great disproportion between the head and the pelvis and to control the position of the legs before and after the incision there need be no danger of lacerating the soft parts. Professor Frank had performed the operation in his clinic 155 times without mortality as a direct result of the technique. Two deaths which occurred in the series had nothing to do with the operation. One patient was infected with gonorrhœa and died on the eleventh day of the puerperium with a right pyosalpinx and gonococcal peritonitis. The second fatal case was admitted with severe nephritis and died 11 days afterwards from uræmia. No hæmatoma or any other complication was noted. The speaker noted as contraindications to the operation extreme narrowing of the conjugate and the absence of complete dilatation of the os. Pyrexia was no contraindication if it was desired to save the child. After division of the symphysis it was desirable as far as possible to leave the birth to nature. Statistics had shown most encouraging results in the diminution of fœtal mortality. In the case of mothers who had already borne children, only 23 per cent. were live births. With symphysiotomy, on the other hand, the percentage of living children was raised to 94 per cent. Professor Frank, therefore, came to the following conclusions regarding the treatment of pelvic contraction: 1. In cases with large disproportion classical Cæsarean section was advised, if strict asepsis could be guaranteed. 2. If the asepsis was in doubt delivery by the suprasymphyseal extraperitoneal route was advocated. 3. In moderate degrees of narrowing subcutaneous symphysiotomy was to be preferred in multiparæ. In primiparæ with a narrow vagina suprasymphyseal delivery was advised if there was any suspicion of infection.

In "clean" cases classical Cæsarean section should be performed. 4. If the delivery to obstruction was only slight symphysiotomy should be considered. With regard to suprasymphyseal delivery, the speaker emphasised the fact that the uterus must be opened without injury. Should trauma occur the wound must be carefully sutured. The suprasymphyseal operation was undoubtedly more difficult than classical Cæsarean section, but it could be performed when the latter was contraindicated. Professor Frank's statistics included 100 cases, 52 being primiparæ and 48 multiparæ. Two patients died, one from puerperal sepsis and the other from septic peritonitis the result of a laceration in the peritoneum at operation. All the children were saved with the exception of four.

The PRESIDENT then called upon Dr. DAVID SHANNON (Glasgow) to read his paper upon

The Cases of Contracted Pelvis admitted to Professor Kerr's Clinic in the Glasgow Maternity Hospital between the Years 1909 and 1913.

Dr. Shannon, after referring to the unusual facilities afforded in Glasgow for the study of contracted pelvis, probably the result of rickets, said that his paper was based upon a statistical study of 355 cases of pelvic contraction admitted to the Glasgow Maternity Hospital during the last five years. These cases formed about 27·5 per cent. of the total admissions during this period. The average weight of the children was 7 lb., and the figures appeared to show that not infrequently when pelvic contraction was present the child was below the average weight. It might almost be said that the smaller the pelvis the smaller the fœtus. In fact, in all the spontaneous cases the children were quite below the average. The speaker next discussed at some length the question of diagnosis, and emphasised the fact that no criterion could be drawn from the pelvic measurements as to the influence of the bones upon labour, except in cases of extreme contraction. For the borderline cases measurement was only of value in showing the type of contraction present, but was useless for estimating the degree of difficulty that was to be apprehended. The important factor in such circumstances was the comparison of the size of the fœtal head with the pelvic brim. This was best obtained by Munro Kerr's modification of Müller's impression method. The patient should be anæsthetised, and to avoid error care must be taken during the manipulation to avoid lateral displacement of the head. Three degrees of contraction might be recognised based upon the clinical data obtained by this method. In Group 1 the overlapping of the fœtal head was very marked. In such cases Cæsarean section was indicated. Group 2 included those cases where the overlapping was of a moderate degree only. Many such patients delivered themselves, others required forceps, and all might be treated successfully by pubiotomy or symphysiotomy. In Group 3 the overlapping was but slight and delivery was always spontaneous. With regard to the question of spontaneous delivery in pelvic contraction, Dr. Shannon remarked that in the series he brought forward the percentage of unassisted births was 2·5. This was probably a low estimate, since forceps were frequently employed in cases of inertia, which would undoubtedly, if left, terminate naturally. In some instances, even with children weighing 9 lb. and 10 lb., it was surprising how short the second stage might be. The most difficult factor to estimate in any case was the power of the uterus. For this reason whenever a waiting policy was adopted a very careful watch must be exercised over both the fœtal and maternal pulse-rate and the maternal temperature. If any rapid rise was noted delivery must be effected at once. Otherwise as long a period as possible should be allowed for complete moulding of the head to take place. It was the speaker's opinion that many practitioners applied forceps too early in the case and so produced unnecessary difficulties. Traction should be only slight, and it was not good practice to exercise strong and severe pulling. The practice at the Glasgow Maternity Hospital in Professor Munro Kerr's clinic was to avoid any interference until the test of labour had occurred. In many of the cases it was a matter of surprise how easily the labours terminated even when all preparations had been made for symphysiotomy. When forceps were applied if three or four pulls failed to deliver pubiotomy or symphysiotomy was performed. Pubiotomy was preferred to symphysiotomy, but neither operation found much favour in the clinic. Discussing the operation of craniotomy Dr. Shannon remarked that in the figures he submitted this procedure had been adopted more often than desirable, because the cases were admitted to the hospital at such a late stage of labour. Many were infected, and in some the uteri were tetanic. This unfortunate occurrence, he thought, was largely due to the existence of untrained midwives. In all 46 cases were recorded. Of these, 32 operations had been performed in the case of dead children and 10 living. In 4 cases no records were found in the notes. The operation was always carried out with reluctance, but in these badly infected and urgent cases it appeared preferable to Cæsarean section or pelviotomy. The maternal mortality registered 6·5 per cent., and the morbidity 25 per cent. In conclusion, Dr. Shannon referred to the frequency of albuminuria noted in the present series of cases of pelvic contraction. Of the 355 patients, 51 showed marked albuminuria and 3 were complicated by eclampsia.

Dr. HASTINGS TWEEDY (Dublin) congratulated the Master of the Rotunda upon the way in which he had marshalled his facts. The difficulties in the past with regard to the treatment of contracted pelvis might be said now to have disappeared. Exact rules for guidance had been set forth, and the results, based upon statistics, fully upheld the views set forth. He wished to enter a protest against the organised hypocrisy of the profession with regard to the exact measurement of the pelvic diameters. In hospital reports and so forth it was not unusual to see measurements recorded to fractions of a centimetre. On inquiry he had invariably found that measurements of the true conjugate thus recorded were obtained from the diagonal conjugate. As a matter of fact, it was just as difficult to estimate correctly the true conjugate from the diagonal conjugate as it was to obtain a true reading of the latter. He protested strongly against the routine use of the fingers in measuring the diagonal conjugate. The method was entirely fallacious, and the only means that could be recommended was by the use of Schultz's pelvimeter. The speaker was pleased to see that in the papers read inches were used to express the various measurements rather than centimetres, since the degrees of contracted pelvis naturally fell into groups of ½ inch.

Professor MURDOCH CAMERON (Glasgow) expressed contempt for statistics and in his practice always relied upon Müller's method and an exploration of the pelvic cavity with the whole hand to diagnose the degree of pelvic contraction. He was not in accord with the view that had been expressed that two or three vaginal examinations should serve as an excuse for craniotomy. His favourite operation in any case of well-marked contraction was Cæsarean section. Professor Cameron then demonstrated the types of forceps he used in overcoming obstruction in moderate degrees of contraction.

Professor KYNOCH thought that in minor degrees of pelvic contraction the aim of the obstetrician should be to obtain a spontaneous delivery. This could only be done by disregarding the finger of the clock and paying more attention to the general condition of mother and fœtus. In primiparæ he was of opinion that the first labour should form a "test" case upon which the conduct of subsequent pregnancies might be based. With regard to pubiotomy and other widening operations it seemed that the tendency was to put aside good methods for others not so well known. For instance, Professor Kynoch thought that the induction of premature labour had been too severely criticised. The failures attributed to this operation were not really due to the method but rather to the technique employed. The speaker then drew attention to the deficient education of medical students with regard to the diagnosis of pelvic contraction. They were taught much about pelvic measurements and very little about estimation of the size of the child's head and its adaptability to the pelvis, a matter of far greater practical importance. A method which he personally had found to be of considerable service was to take the measurement between the tip of the last lumbar spinous process and the front of the child's head at the point of greatest overlapping and contrast it with the external conjugate. If the difference between the two measurements was greater than 3 cm. delivery was impossible and Cæsarean section was indicated. On the other hand, if the difference was only 1 cm. or less delivery might be

expected to be spontaneous. With regard to symphysiotomy as advocated by Professor Frank, the speaker said that he had had an opportunity of visiting his clinic and seeing the operation performed. As carried out by him it certainly possessed points ahead of any other method that he had seen and he could strongly recommend it.

Sir JOHN BYERS (Belfast) considered the teaching and conduct of difficult labour, more particularly with reference to the State. Professor Kynoch had drawn attention to one aspect of the case when he referred to the teaching of students. Another, and perhaps more important, factor was the present lack of arrangements for compelling women to seek advice before labour occurred. It was here that the 30*s.* benefit of the Insurance Act failed in its application. If, instead of being wasted, it had been applied to the provision of pre-maternity services, a very great advance would have been made. The speaker then referred to the large number of Cæsarean sections in Dr. Shannon's statistics and thought that an investigation should be made as to the cause of so much rickets in Glasgow. With regard to the operation recommended in any particular case Sir John Byers said that whatever method a particular surgeon preferred he became an adept at it. Whatever method was selected craniotomy upon the living child should be entirely eliminated. In conclusion, the speaker entered a strong plea for the establishment of pre-maternity State hospitals. At present very great difficulties existed, since the panel doctors were even now unable to cope with the necessary work. In fact, this pressure of work quite precluded any systematic examination of pregnant women.

Dr. H. OLIPHANT NICHOLSON (Edinburgh) preferred induction of labour to any operation at full term, and demonstrated his method of performing the operation by packing the uterus. Induction seemed to him to possess advantages over operative measures because it could be carried out with safety by the general practitioner.

Dr. JELLETT, in reply, said that under suitable circumstances and in the hands of a competent man the induction of premature labour could not be compared with pubiotomy. With regard to the arguments which had been advanced as to methods suitable for the general practitioner, he would say that the treatment of these difficult cases should not be in the hands of the practitioner at all. His paper had dealt entirely with modern midwifery and not midwifery adapted to the requirements of the practitioner. As to the remarks that had been made, almost all the speakers had referred to the disproportion between the child's head and the pelvis as being the all-important factor in diagnosis, but few had suggested the means to rectify it. Pubiotomy did it, and the great value of the operation was that it lowered the risk for all subsequent labours. In fact, Dr. Jellett expressed the view that the time would come when pubiotomy would be advocated before labour as a prophylactic measure rather than as a means to combat an emergency.

FRIDAY, JULY 31ST.

Dr. H. LEITH MURRAY (Liverpool) read a paper upon the

Nitrogen Metabolism during Pregnancy Based upon a Series of Investigations upon the Ammonia and Total Nitrogen Output in the Urine.

The speaker commenced by expressing regret that even in maternity hospitals the routine examination of the urine was not so full as it might be. Beyond the qualitative investigation for albumin and acetone and the quantitative examination of urea little else was done. These tests gave information which was only of slight value at best. It was of much greater importance to have a correct quantitative estimation of the ammonia and total nitrogen and degree of acidosis. Dr. Murray then described three simple quantitative tests which could be applied by a relatively inexperienced worker in a clinical laboratory: (1) Mathison's method of ammonia estimation; (2) Groat's method of total nitrogen estimation; and (3) Hart's colorimetric method for estimating the acidosis index. The first was performed by shaking for two minutes 25 c.c. of urine with 15 grammes of *neutral* potassium oxalate and 50 c.c. distilled water. The solution is neutralised with N/10 soda, using phenolphthalein as an indicator; 5 c.c. of neutralised commercial formalin were added and the solution again titrated with N/10 soda until neutral. Each cubic centimetre represented 0·0014. Groat's method consisted of adding to 2 c.c. of urine 6 c.c. concentrated sulphuric acid and a few crystals of potassium sulphate in a Kjeldahl flask. The mixture was boiled in a fume-cupboard until clear, cooled, washed thoroughly into a large flask, and the total nitrogen estimated as ammonium sulphate by Mathison's method. For the estimation of the acidosis index by Hart's method two solutions were necessary: (*a*) ethylacetoacetate 1 c.c., alcohol 25 c.c, distilled water 1000 c.c.; and (*b*) ferric chlorid 100 grammes, distilled water 100 c.c. Into each of two test-tubes of equal calibre were placed 10 c.c. of solution (*a*) and 10 c.c. of urine respectively. To each was added 1 c.c. of solution (*b*). The tube containing urine was diluted until the two matched. The acidosis index per litre then measured 1/10th of the volume (cubic centimetres) in the tube of urine. To obtain the index proper, which represented the total acidosis estimated in terms of grammes of β-oxybutyric acid, the above was multiplied by the number of litres of urine passed in 24 hours. The speaker discussed the possible value of the data obtainable by these tests at some length. An increased ammonia coefficient did not necessarily indicate an acidosis, but might, and often did, represent a change in the liver either degenerative or necrotic. The coefficient normally rose as pregnancy advanced, and was highest during labour. It dropped immediately after labour. It should be noted, moreover, that a trace of albumin had no relation to a high coefficient of ammonia. In discussing the subject of acidosis Dr. Murray raised the question as to whether even an estimation of the acetone bodies was a true measure of the condition. He was inclined to agree with Sellard as opposed to Williamson that the only true test was one of tolerance to alkali. If the organism were in no need of fixed bases any alkali introduced would be eliminated and the urine become alkaline; if, on the other hand, there were a need for fixed bases it would remain in the body and the reaction of the urine would remain unchanged. Sellard's test of administering repeated doses of sodium bicarbonate and investigating the reaction of urine at stated intervals appeared to be a satisfactory, valuable, and easy method for testing the degree of acidosis. The test was in addition a therapeutic measure and gave a clear indication of the cause of a raised ammonia coefficient, whether from a disorder of protein metabolism or as a purely compensatory process. The speaker then gave the results in 80 cases of normal and toxic pregnancy investigated by the above tests. In symptomless pregnancy it appeared that the coefficient rose steadily towards the end, varying between 2·2 and 12 per cent. Occasionally even higher ratios were observed during labour. Hyperemesis, eclampsia, pre-eclampsia, and nephritis complicating pregnancy were discussed in turn, and a comparison made between the ammonia ratio, the acetone bodies, and in some cases Sellard's tests. In hyperemesis (1 case) the urine showed an absence of albumin and acetone, and yet the ammonia coefficient was raised to 25 per cent. Greatly increased tolerance to sodium bicarbonate was present. In eclampsia the ammonia coefficient varied from 13–16 per cent. All the cases, however, were in labour at the time. In one instance mental symptoms remained and the coefficient persisted high. In the case of two pre-eclamptics no acetone was present, and the ammonia coefficient was low. There was, in fact, no evidence of the condition apart from the clinical signs. Dr. Murray admitted the difficulties in the interpretations of the results, and concluded by putting forward a plea for a further and more extended study of the whole subject.

Mr. BECKWITH WHITEHOUSE, in congratulating Dr. Leith Murray upon the value and interest of his paper, said that the author was undoubtedly correct in his statement that the routine examination of the urine in most cases consisted of the simplest tests only. Dr. Murray had attempted to prove that these tests were of very little real value in estimating the actual condition present. If his views were correct, then undoubtedly it was their duty to arrange that the more elaborate tests which he had described should be carried out. This work could only be carried out in a properly equipped laboratory, and Dr. Murray's paper had served to emphasise once more the great importance of clinical pathology in modern medicine and the urgent necessity for equipping hospitals, and particularly maternity hospitals, with the means for applying the results of the new work and extending the knowledge already gained. If he might offer any criticism he would suggest that with regard to the value of the new tests in pathological pregnancy they should not draw any conclusions

until a longer series of cases had been brought forward. The majority of Dr. Murray's investigations had been made in the cases of normal healthy pregnancies. In the few figures submitted of pathological conditions the results were a little confusing. No doubt with longer series of cases these difficulties would disappear and clear deductions made possible.

Dr. A. W. RUSSELL (Glasgow) expressed his great interest in the paper and said that it was of particular value to him inasmuch as at the Maternity Hospital, Glasgow, a clinical and chemical laboratory would soon be available where work of this nature could be conducted. From 60–70 cases of toxæmic pregnancy were admitted every year to the hospital, and therefore if the tests described by Dr. Murray were of value it was a matter of considerable importance to him. In cases of toxæmic vomiting Dr. Russell's practice was to estimate the ammonia output, and he was convinced that the criterion supplied by Whitridge Williams was a good one, to empty the uterus if the coefficient was high.

Dr. A. TENNYSON SMITH (Orpington) described

A Case of Rupture through the Scar of a Previous Cæsarean Section

occurring in a gipsy aged 22. The patient had a markedly contracted pelvis of the "flat" type. Her first pregnancy was terminated by Dr. Smith by means of Cæsarean section. The placenta occupied an anterior position, but delivery was effected without great difficulty and the uterus closed by a double row of sutures. The first layer included submucous and peritoneal layers, the second peritoneum only. The patient made an uninterrupted recovery and left the hospital at the end of a fortnight. A year later Dr. Smith was again called to the same woman and found her pregnant and in a moribund condition. A diagnosis of ruptured uterus was made, and upon opening the abdomen this was confirmed by finding a fœtus lying free in the peritoneal cavity surrounded by much blood clot. The fœtus was dead and in the right sacro-iliac position. The placenta also was completely detached, having been extruded through a rupture four to five inches long in the uterus in a line with the incision of the previous Cæsarean section. Any attempt to approximate the edges of the wound with sutures failed, and hysterectomy was therefore performed. The patient did extremely well and left the hospital at the end of 14 days. A month later she was known to be working in the fields!

The PRESIDENT said that Dr. Smith had brought forward a very interesting case and one of extreme rarity. He could not think that the placental site was a contributory factor in the accident, and he was more inclined to attribute it to thinning of the uterus and rupture at a weak spot due to a prolonged and obstructed labour.

Dr. C. E. PURSLOW (Birmingham) asked what material had been used to suture the uterus at the Cæsarean section. Personally he always employed silk in the case of the uterine wall.

Dr. DONALD spoke in favour of catgut as the suture material.

Dr. SHANNON recalled two cases of rupture and one of thinning of the scar after the operations of Cæsarean section. He did not think that the method of suturing had much to do with the accident. Personally he always employed catgut, and he did not think that those of his colleagues who used silk as the suture material had had better results. The healing of the uterine wound after Cæsarian section was in a very different position to other wounds owing to the retraction taking place. The constant movement would favour the development of fibrous tissue. Probably sepsis had much to do with weakening of the scar and the predisposition to subsequent rupture.

The PRESIDENT read a brief paper upon

The Treatment of Eclampsia by Means of Veratrone.

A year ago in a communication to the Edinburgh Obstetrical Society he had first drawn attention to the subject.[1] Since then five other cases had been attended with marked success and the present paper was based upon the results obtained. In the first case the patient was admitted to hospital with a blood pressure of 160 mm. Hg. and a pulse-rate of 64. Severe headache was present and much albumin was noted in the urine. 1 c.c. of veratrone was administered, followed by an immediate fall in the blood pressure to 120. Subsequent rises of pressure were on each occasion reduced by administration of the drug, with relief of headache. In all 7 c.c. of veratrone were given. Induction of labour was required in the end, but the patient made an excellent recovery. The second patient was admitted to hospital after a succession of 12 fits. Considerable œdema of the face and arms was present, and the blood pressure registered 175 mm. Hg. The pulse was 100. Only 4 ounces of urine were present in the bladder. 1 c.c. of veratrone produced a fall in the blood pressure to 110 mm. Hg. Although subsequent rises occurred, after each dose of the drug there was a corresponding drop in the arterial pressure. A living child was born, and the patient made a good recovery. A third instance was given of a multipara who had in previous labours suffered from symptoms of an eclamptic nature, and who was admitted to hospital with a blood pressure of 200 mm. Hg. 1 c.c. of veratrone produced a fall of pressure in ten minutes to 125 mm. Hg. Eventually it was reduced to 100 mm., but as no further evidence of improvement was noted in spite of a rigid milk diet, labour was induced. A living child was born. Details of two similar cases each attended with a successful termination were recorded. In discussing the cases the President noted the fact that the severe headache always disappeared when the blood pressure was reduced. On the other hand, if the pulse-rate fell rapidly severe vomiting occurred. In a general survey the outstanding feature of eclampsia was the raised blood pressure. It was always present, and was probably one of the factors responsible for the convulsions. It could not be the *only* cause, however, since fits do not occur when the pressure rose subsequently to the administration of veratrone. As a general rule depression of the pressure by means of this drug was accompanied by a slow pulse-rate and increased urinary secretion. From experiments performed upon cats, the speaker had found that in small doses it produced a fall of blood pressure and a slowing of respiration. If the vagi were cut no difference was noted, and adrenalin and pituitary extract still exerted their usual effect upon the capillaries. The increased urinary secretion was probably due to removal of spasm in the renal capsules. It was possible at the same time that veratrone acted as a direct antidote to the eclamptic toxin. Altogether he (the President) had used it in 17 cases with inhibition of the fits in every case. Only one fatality occurred. The treatment that he adopted might be summarised briefly as a combination of milk dietary, free purgation with calomel, hot packs, and lowering of the blood pressure by means of veratrone in repeated doses of ½–1 c.c.

Professor R. G. MCKERRON (Aberdeen) said that he had listened to Dr. Haultain's paper with great interest, and thought that it formed a very fitting conclusion to a most successful meeting. He had been present when Dr. Haultain had first advocated the veratrone treatment, and as his previous results had been attended by such a high mortality he had since adopted the drug. He was not altogether hopeful that veratrone would prove to be a specific for eclampsia, but he intended to give it a fair trial. The varying results obtained after almost any treatment of this condition suggested that there must be more than one kind of eclampsia. In one type morphia was successful, in another evacuation of the uterine contents was required, and so on. The difficulty was to know in any particular case what was the ideal treatment. At the same time he would for the present impress upon his hearers the great importance of adopting one course and adhering to the same.

Dr. JELLETT referred to Veit's method of treating eclampsia. He had successfully employed the same method during the last three years. In it morphia was used as an adjunct, but it was not the "morphia treatment." He would be inclined to employ veratrone in the same way—viz., as an adjunct to other treatment and to be applied when necessary. Eclampsia could not be regarded as a specific disease. Probably many different causes were involved, requiring as many different methods of treatment. Referring to the results obtained at the Rotunda Hospital during the last six or seven years, Dr. Jellett observed that next to those obtained by Professor Stroganoff the results had been better than any of those attributed to operative treatment.

Professor KYNOCH had tried the veratrone treatment in two cases with very gratifying results. At the same time he sounded a note of warning with regard to the markedly depressant action of the drug. Constant attention

[1] THE LANCET, July 26th, 1913, p. 222.

was most requisite after its administration, and therefore the method was perhaps more suitable for hospital than private practice.

Emeritus Professor W. STEPHENSON (Aberdeen) expressed his great interest in the paper, inasmuch as the experiments had very largely confirmed the work that he had done some years ago upon veratrum viride in the treatment of eclampsia. The preparations that he had used had failed because he found it impossible to keep them for any length of time. Veratrone, on the other hand, was a reliable preparation with a specific action and one that could be admininistered hypodermically. The marked depression which sometimes accompanied its use might be overcome by combining it with an injection of morphine. He did not think that it was necessary to have recourse to veratrone in every case of eclampsia.

The PRESIDENT, in reply, said that he did not consider veratrone a panacea in any way. All he asserted for the drug was that it had a distinct pharmacological action in reducing the blood pressure and therefore the number of fits. He was of opinion that the statistics brought forward by the Rotunda Hospital could not be applied to cases in Scotland, the reason being that in all probability a different disease was under discussion.

MEDICAL SOCIOLOGY.

President, Dr. JOHN GORDON (Aberdeen).

WEDNESDAY, JULY 29TH.

The PRESIDENT, in opening the proceedings of the section, touched upon the closer connexion now existing between the medical profession and the State, beginning with the introduction of the Poor-law in 1842 and culminating in the National Insurance Act. One of the most promising features of recent legislation was that the medical expert had been incorporated into the educational system. It was on the practical experience and everyday knowledge of medical officers of health and general practitioners that social reform and new legislation dealing with public health must be principally based.

A discussion then took place on the Responsibility of the State in Connexion with Venereal Disease. Dr. A. K. CHALMERS (Glasgow), in introducing the subject, discussed

The Relevance of Available Statistics.

He doubted if anyone could say definitely the amount of venereal disease in this country at present; death returns gave no direct help, and applying to the population as a whole the ratio of positive reactions obtained from selected populations was misleading. Moreover, an examination of special data gave considerable variations in the results. Attempts to ascertain the prevalence of the disease should distinguish between acquired and congenital syphilis. An application of the Wassermann test to children suffering from scarlet fever and measles admitted to the Ruchill Hospital, Glasgow, gave a proportion of 8 per cent. positive reactions. This might be compared with 3 per cent. representing the proportion of infants displaying clinical evidence of the disease in over 4000 brought to infant consultations. There was a contrast presented between both these rates and the results in over 700 samples of blood examined by the Wassermann test from patients whose symptoms were obscure; this percentage amounted to 38. Of the three he thought the 8 per cent. the more likely as an index of congenital syphilis. Ophthalmia was present in from 9 to 11 per 1000 births, and of these 13·7 per cent. were complicated with syphilis. The means of diagnosis and treatment of the disease must be made free to the whole population, and though local authorities should organise the facilities, a considerable proportion of the cost should be supplied by the State. An estimate of the probable cost might be made by assuming the 8 per cent. ratio just mentioned, applying it to the population generally and taking 20*s.* as the average cost of salvarsan for an adult. The cost of salvarsan would then be £80,000 for every million of the population, and the total cost to the country in one year might readily run into £3,750,000. If drastic treatment of this sort could be relied upon as likely to protect the population from the worst effects of the scourge he believed the national advantage would well outweigh the cost.

Dr. ERIK PONTOPPIDAN (Copenhagen) gave an account of

Public Measures against Venereal Disease in Denmark.

He said the principle of public and free treatment of venereal patients had been the rule for more than a century, but until 1906 little more was done than to provide for the police supervision and sanitary control of prostitutes. The unsatisfactory results, and the growth of enlightenment and of sound medical criticism, led to the passing of the 1906 law, by which all control over prostitution was abolished and replaced by strict rules, enforced upon all venereal patients. Unfortunately, the medical profession was not consulted, and the law contained many provisions to which the profession strongly objected. Only the readiness of the profession to seize on the good points and ignore the bad had made the law work reasonably. The law laid down rules to secure public order and decency and provided that any person "knowing or supposing" himself to be suffering from venereal contagious disease who had sexual intercourse with another should be liable to imprisonment; the clause extended also to married intercourse. The difficulty of proving cases rendered this clause practically a dead letter. The right of free treatment and the obligation to submit to it were continued in the new law. The doctor in attendance was required, if a patient did not attend in accordance with his instructions, to notify the health authorities. This arrangement, which would make of the physician an informing police inspector, met with strong disapproval from the profession, and most practitioners did not notify cases, nor did the police enforce the rule. Provision was made in the law for means of treatment, and in Copenhagen alone about 4000 men and 1000 women had been treated each year at a cost of about 40,000 kroner a year. Hospital facilities had been augmented. The results obtained had not realised the hopes of the promoters of the new sanitary system; the number of cases of syphilis and venereal disease in Denmark had not been reduced. He believed the lesson to be learned was that the fight must be left to the trained medical army, with the least possible help from the penal code and the police.

Dr. A. LOUISE MCILROY (Glasgow) suggested that a system of confidential notification was necessary, but that for this purpose the Royal Commission should be continued for some years and be authorised to receive confidential notifications of hospital cases. A blood test of gynæcological cases at the Glasgow Royal Infirmary showed that in the first 100 cases the Wassermann test gave a positive reaction in the enormous percentage of 43 instances. At the end of the third hundred the percentage was reduced to between 30 and 40. Every stigma should be removed from treatment of venereal disease, and treatment should not be restricted to special hospitals or specially named wards of general hospitals. Some control should be exercised over patients in a highly infectious state.

Dr. LACHLAN GRANT (Ballachulish) urged that the extirpation of venereal diseases was bound up with the prevention of prostitution, and that this evil could be prevented. With a few exceptions it was due to poverty and ignorance, and a reform of social and economic conditions, including housing reform and the institution of a minimum wage, in his opinion would reduce to a negligible quantity the demand for illicit and unnatural sexual indulgence.

Dr. HELEN M. WILSON (Sheffield) said the community should attend to the moral as well as the physical sanitation of streets, factories, and places of amusement. Beside diagnosis and treatment, doctors owed to patients the warning necessary for guarding against future consequences. A woman should be told if she became infected through married intercourse. The fear of breaking up a home deterred physicians from telling a married woman, but in a great many cases, though indignant, the wife would forgive, and the modern woman wanted to do her own forgiving and not have it done for her by a doctor.

Mr. T. JENNER VERRALL (Bath) urged that the profession must be quite sure of its position in regard to the treatment of venereal disease before it attempted to form or lead public opinion. The public would submit with reluctance to these matters being dealt with openly, and a false step—for instance, in dealing with statistics—might put the whole question back a hundred years. More outspoken treatment as between doctor and patient was not only justifiable but a duty. He was prepared to go to the fullest lengths in open

treatment, provided the advance were cautious and the profession did not run the risk of being charged with acting in panic.

Dr. L. A. PARRY (Brighton) entered a caveat against Dr. McIlroy's figures, relative to the examination of a special class, being used for any general purpose.

Dr. LAURA S. SANDEMAN (Aberdeen) approved of the removal of the stigma from treatment of venereal disease, especially since, in so many cases, the disease had been acquired innocently. She thought sickness benefit under the Insurance Act should not be refused to venereal patients; the present policy tended to discourage treatment. The number of acute cases was small as compared with paralytic and chronic rheumatic cases, mainly syphilitic in origin, and for which the societies paid without question. She was in favour of confidential notification, and thought the State should make itself responsible for treatment as a valuable investment from a national point of view.

Sir JOHN COLLIE (London) stated, as a member of the Royal Commission on Venereal Diseases, that the question of confidential notification was being seriously considered. He was opposed to it on the ground that it would tempt sufferers to consult quacks instead of qualified practitioners. It needed serious consideration whether notification would not tend to spread the disease, thus counterbalancing the advantages of getting statistical information.

Dr. S. D. CLIPPINGDALE (London) contributed a historical note showing that the town council of Aberdeen was the first public authority in these islands to attempt by legislative edict to arrest the spread of syphilis. The disease came to Scotland direct from France, and the town council in 1497 issued an injunction to infected persons to abstain from visiting meat and other markets and laundries.

THURSDAY, JULY 30TH.

The proceedings opened with a discussion on a State Medical Service *versus* a Panel System.

Sir JOHN COLLIE read the opening paper in support of

A State Medical Service.

His first point was that no Government was likely to extend medical benefit to the dependents of insured persons on the basis of the panel system at the present rate of remuneration for medical practitioners. Next, although thousands of practitioners were giving good service under the Act, he suggested that for the peculiar difficulties of medical practice in the poor districts of large towns and the thinly populated areas of the Highlands of Scotland a State medical service would be the most satisfactory means of providing treatment. He was adverse to the nationalisation of medicine, and saw no necessity at present for a wholesale State medical service. A part-time service would work in certain districts contemporaneously with the panel system. He deprecated violent changes, but he believed developments in this direction were bound to come and that they would lead to the coördination of public health services. When these changes did come vested interests must be recognised; those who elected to join a State medical service and failed to sell their private interests must be compensated. Under a State medical service salaries must be good and the number of patients allotted to a doctor must not be excessive. Salaries would be graduated and there would be positions of increasing responsibility and remuneration. Facilities would be provided for modern methods of diagnosis, the advice of consultants, and for the augmentation of the present inadequate hospital accommodation. Doctors paid fixed salaries by the State would be more independent of the general public; they would also have regular hours and regular holidays, more time for the home and for post-graduate study, freedom from the commercialism of the present system, and a pension at the end of service. He believed the training of a doctor would prevent his becoming a mere official under such a system; he would still be a clinician, not an administrator. Sir John Collie concluded by criticising an uncompromising insistence on the principle of "free choice," and pointed to the various classes of practice in which no free choice of doctor by patient existed.

Dr. H. H. MILLS (Kensington) followed with a paper in support of

The Panel System.

He urged that it had not yet had a sufficiently long trial for a judgment on its working to be formed. The panel system, which had been advocated by the British Medical Association in theory before the Insurance Act was introduced and approved by the Association when a concrete proposal was before the country, furnished an elasticity of working most closely approaching to the best traditions of the medical profession. Launched in the career of a State doctor, a practitioner would see nothing before him except a number of years' work at a fixed salary with a pension, and this would tend to make work mechanical, mental and professional activities being atrophied because of the limited range of outlook. The panel practitioner, on the other hand, had acquired a new independence; he felt that he was a factor in the social development of the people amongst whom he worked, and that he was destined to mould the social legislation of the near future. As to the difficulties in industrial areas of large towns, there was evidence in London at least of a migration of doctors into densely populated neighbourhoods hitherto insufficiently supplied with medical practitioners. In four London boroughs, with a population of 700,000, where nearly all the doctors were on the panel, 17 new practices had been started since the Insurance Act came into force. In the country generally there were not great numbers of insured persons on single lists; special difficulties had occurred in London in this respect owing to the action of the "die-hard" section of the profession. Lapses on the part of the individual doctor would occur under any system; they were brought to light because for the first time the poor had a tribunal easy of access.

Dr. R. C. BUIST (Dundee) discussed in a somewhat academic paper

The Psychology of Medical Practice.

He argued that the work the doctor rendered must be fairly balanced by an adequate share of the satisfactions of life. If this foundation were unevenly laid any superstructure would be unstable. Nevertheless, the more constantly this foundation were present to consciousness the less satisfactory was the structure. If its science was safe and its compassion inevitable the profession need not trouble itself overmuch about subsidiary issues.

Dr. MICHAEL DEWAR (Edinburgh) described the arguments for a State medical service—regular hours, time for research work, and so on—as simply an alluring bait dangled before the profession. The uncertain nature of the work prevented regular hours; the other advantages could only be enjoyed by a section of the profession. Considering the short time that had elapsed and the magnitude of the undertaking, he thought that the panel system had been a wonderful success. The conditions were not unduly irksome or burdensome and the remuneration was fairly good having regard to the usual charges per visit in a working-class practice and the absence of book-keeping or bad debts. The existing mileage rate was one of the blots of the system; if this were reconsidered the system would even be thought fairly satisfactory by practitioners in country districts. Too much regard should not be paid to difficulties in a few districts; in the country as a whole the system was working well. It was almost a shame that before the present arrangements had been in force a sufficient time to prove their worth a number of practitioners could be found who hurriedly condemned them and sought to replace the panel system by one not favoured by a large majority of thinking men. A State service would abolish the principle of free choice, and judged by other State services, such as the Poor-law, it must not be taken for granted that a State service was necessarily the best. Linking up and coördination of existing services, of which State Medical Service advocates made so much, could be accomplished under the panel system, and was, in fact, about to be undertaken. It was said that a State Medical Service would be of a preventive character; private practice, and especially insurance practice, was largely preventive in character at present.

Dr. A. C. FARQUHARSON (Durham) thought the panel system was to be preferred to the fetters of a wonderful arrangement providing regular hours and pensions but taking away the individuality that had come down to the medical profession through the centuries. If a State service were established, would it be in competition with the general medical profession? If so, the State would derogate the

right of individuals to enter into contracts with one another and thus interfere with personal liberty. He was not convinced that coördination and efficiency would, in fact, be the result of a State service. He was a firm believer in the panel system; the Act was working with huge success in Durham.

Mr. MILSON R. RHODES (Manchester), whose communication was read in his absence, declared that the principles of a State preventive medical service were that the medical profession should become the servant of the community and not of the individual patient. When the nation realised that the general practitioner should be the household teacher of preventive treatment and medicine, and not stand merely for the principles of curative and palliative treatment, he hoped the profession would lead rather than be driven by the inevitable process of collective action.

Mr. E. B. TURNER (London) thought that a State service would not get the best out of the individual practitioner; a civil service department was not the best method of Government control of an individualistic profession such as that of medicine. A State service overlooked the personality of the medical man—an enormous factor. If promotion in a State service were by nomination the door would be opened to political favouritism; if by the ordinary routine of a Government office, the man who gave least trouble to superiors and proved himself a docile machine would come to the top. Panel work was partly a State service, but it was far more elastic. Mr. Turner indicated that although he thought a panel system preferable to a State service his sympathies lay with free untrammelled practice in which a practitioner could give of his best under the stress of strenuous competition and in intimate relations with his patients. There were still thousands of doctors striving for this ideal and who said, as to the two systems under discussion, "A plague on both your houses."

Dr. CHARLES FORBES (Aberdeen) thought a State medical service was rapidly becoming a question of practical politics, because treatment of the dependents of insured persons at the same rates as under the present agreements would cost a greater sum than the country would pay. The approved societies would support a State service on grounds of economy, and he believed three-fourths of practitioners on the panel would accept a State service if the terms were satisfactory.

Dr. J. C. MCVAIL (Edinburgh), vice-chairman of the Scottish Insurance Commission, thanked the Association for the invitation to be present, and remarked that under the Insurance Act the doctor came in as a private practitioner with the primary object of doing his very best for the patient; the medical practitioner was always at his best when dealing with a patient as an individual. Taking it for granted that a majority, as indicated by the discussion, were in favour of a continuation of a panel system, it was important they should do their utmost to make the system a success. In this connexion Dr. McVail emphasised the importance of careful certification. It must be made clear when cases really came under the Workmen's Compensation Acts rather than the Insurance Act, and diseases of misconduct must be set down unflinchingly by their real names. A doctor must be careful to certify a man as fit for work on the very day that he decided the person to be in that condition; the workman must not be given till the following Monday to avoid a broken week's work. Every day of sickness was a heavy charge upon the Insurance Fund.

Dr. L. J. PICTON (Stockport) said that little as he sympathised with the exponents of a State medical service, they did at least attempt to deal with the question of taking in the dependents. Supporters of the panel system must say how they would deal with this class. The question was entirely one of expense, and he could not see how the dependents were to be included under the present system, except at a cost that the community could not bear. A source of heavy claims might be eliminated by requiring the individual to bear the cost of short illnesses, the State only coming in after the first days of sickness.

Mr. WISHART (chairman of the Aberdeen Insurance Committee) expressed the opinion that medical practitioners themselves must deal with the defects of the present medical service, especially with the existence of large lists. Otherwise the Approved Societies would press for a State medical service. Why did not practitioners avoid the difficulty of inadequate waiting-room accommodation by grouping themselves and combining to maintain a well-built waiting-room with a nurse and dresser?

Sir JOHN COLLIE, replying on the discussion, said he did not think the profession realised the difficulties that would arise when the extra half-crown voted by Parliament came up for revision, and the dependents were proposed to be included under the Insurance Act.

Two papers were read dealing with

Medical Certification other than Under the Lunacy Acts.

Mr. C. SANDEMAN, K.C., made a contribution in which he explained why, in his view, doctors who signed certificates under the Insurance Act ran no practical risk. There was no breach of confidence in telling a man himself what one thought of him, especially when the man asked for an opinion, and the Insurance Act certificate was addressed to the patient himself. Any publication was made by the patient and he could not recover damages. In Scotland he could sue for injury to personal feelings by the statements in the certificate, but the damages for this were usually assessed at a nominal sum. A doctor warranted his skill, but the warranty only carried him to the point of due care, and one saw very few actions against doctors for malpraxis. If a doctor gave reckless wrong certificates he would be liable to damages for fraud or, if the examination had been careless, to damages for malpraxis.

Dr. FARQUHARSON dealt with the position that under the Insurance Act the doctor was at once the confidential and possibly sympathetic agent of the patient and in some degree the trustee of the State. That flexibility which formerly existed in granting certificates must now practically disappear. Opportunities of illegally sustaining claims were found (1) in the first week and (2) in the weeks of convalescence. An initial certificate merely stating the fact of illness should be followed by another within a week if genuine incapacity resulted. For these cases the practitioner should unhesitatingly accept the fullest responsibility, but for the second group the societies should share in supervision, exercised through the professional referee and the sick visitor. Many doctors sought discretionary powers in regard to post-dating or ante-dating certificates. In his view the system gave no scope for flexibility in this matter; the discretion of the honest practitioner so easily became the indiscretion of the dishonest one.

FRIDAY, JULY 31ST.

The last meeting of the section was devoted to a consideration of

The Duty of the State towards the Early Environment of the Child.

Dr. W. LESLIE MACKENZIE (medical member of the Scottish Local Government Board) reviewed existing legislation directed to the ante-natal care of the child, the control of the conditions of its birth, provision for health visiting, infant clinics, milk depôts, &c. He pointed out how little was being done during the pre-school age, when the environmental dangers to a child life were very great. A more workable system of notification of infectious diseases amongst children was greatly needed, and a primary need was a pure milk-supply.

Dr. THOMAS DEWAR (inspector to the Scottish Local Government Board), whose paper was read in his absence by Dr. MACKENZIE, also laid emphasis on the importance of the pre-school age both in regard to health and the fundamentals of education. He advocated the association of children of from 2 to 5 or 6 years of age for a few hours a day on the kindergarten principle. This would enable medical inspection to begin at an earlier age and would allow influence to be brought to bear on the child's development at a most susceptible and impressionable age.

Mrs. OGILVIE GORDON (London) advocated greater insistence by the State on the practical training of girls in routine duties of home life and the intelligent handling of babies and young children. She urged the members of the British Medical Association to throw their influence into the work of arousing public sentiment on this matter and as to the abolition of child labour. Progress might be more easy in matters relating to children and adolescents if the administrative machinery of the State were simpler. At present nearly every Government office had some concern with the child, but there was no central coördinating body. There

were serious gaps in the efforts of the State, viz., in the susceptible years of early childhood and the most critical years of adolescence, with overlapping in the case of some children.

Dr. A. RUDOLF GALLOWAY (Aberdeen) read a paper on the Care of the Eyes and Eyesight of Children during the Pre-school and the School Periods. For children in the first class it was satisfactory to note that measures for dealing with ophthalmia neonatorum were now becoming general; this disease was held responsible for over one-tenth of all cases of blindness in Europe. Dr. Galloway discussed methods of overcoming the ill-effects upon eyesight often arising from school conditions, and suggested that much wasted time and effort would be saved if boys were subjected to colour-perception tests before choosing occupations in which normal sight was essential.

Dr. J. SIM WALLACE (London) dealt with the care of dentition. He urged that in regard to dental disease prevention was infinitely cheaper and better than cure. In the past there had been no recognition of the fundamental principle of dietetics that food should be of such a nature that the mouth would be left physiologically clean after each meal. He thought that medical officers of health and public health authorities should take the problem of public education on this matter seriously in hand, for by this means dental maladies could be most easily and economically abated.

Miss J. C. BARRON (Aberdeen) urged that more should be done to overcome the special educational difficulties of deaf children.

Dr. HARRY CAMPBELL (London) described the condition of the teeth of the people of these islands as appalling, and agreed that errors of diet were responsible. Masses of starch were poured into the stomach absolutely unmasticated, and that was the cause of the ill-developed jaws which were so common.

Dr. J. HAMILTON (Hawick) agreed with Mrs. Gordon as to the duplication of authorities and the need for a central authority for child welfare.

Dr. W. E. HENDERSON (school medical officer for Westmorland) remarked that though the fathers of the children were clamouring for an eight-hours day there was no word of an eight-hours day for childhood. It was a poor and mean thing to filch from children their childhood. Although one heard so much about teaching girls in preparation for motherhood nothing was said as to teaching boys the duty of fatherhood. The only man doing that was a soldier, Sir R. Baden-Powell, whose scout movement he regarded as a great educational factor.

Dr. A. DINGWALL FORDYCE (Edinburgh) expressed surprise that the opening papers did not give the official view of the possibility of a central authority for the care of children.

The section unanimously passed a resolution asking the council of the British Medical Association, in view of the confusion of State, municipal, and voluntary methods of dealing with children, to press for the development of a central bureau to have control over all matters relating to child welfare.

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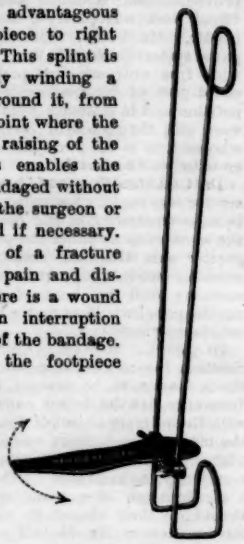
New Inventions.

A NEW FORM OF LEG SPLINT.

THE splint shown in the illustration is a modification of one which I have used for about 20 years, and it has many advantages over the ordinary back splint. It is made of round wrought iron, 5/16ths of an inch in diameter, and the ends of the bars which make the sides of the splint are bent underneath and joined together, forming a horse-shoe support both top and bottom, so that the proximal end of the splint is raised about an inch from the surface on which it rests, and the distal end three or four inches. Two short bars of rectangular wrought iron (3/4 × 5/16 in.) grooved, so as to grip the sides of the splint, are clamped together, one above and one below, and carry a footpiece made of sheet steel, so that it may be moved up and down the splint and fixed at various angles in a plane at right angles to the long axis of the splint. In the larger sizes it is sometimes advantageous to be able to move the footpiece to right or left of the middle line. This splint is very easily padded by merely winding a flannel or domette bandage around it, from the top to an inch from the point where the footpiece is to be fixed. The raising of the splint on its horse-shoe ends enables the limb to be bandaged or unbandaged without lifting it off the bed, so that the surgeon or nurse may work single-handed if necessary. There is also much less risk of a fracture becoming displaced, and less pain and discomfort to the patient. If there is a wound at the back of the limb an interruption can be made by omitting part of the bandage. The angular movement of the footpiece enables the splint to be used for either leg with the limb in what Sir Arbuthnot Lane has pointed out to be the natural position of rest—viz., with some rotation outwards. Indeed, it was to allow of this outward rotation that I originally devised the splint. The sliding upwards and downwards of the footpiece enables the same splint to fit legs of very different lengths; it is also advantageous to be able to remove the footpiece if one desires to work the ankle-joint while the limb is resting on the splint. In fractures of the leg, whether one adopts the plates and screws of Sir Arbuthnot Lane or the massage and movement of Lucas-Championnière, this splint has distinct advantages over any other with which I am acquainted. It is very useful in many affections of the knee, and after excision of that joint, also after plating fractures of the femur. I have one in use at present on a patient whose femur had to be plated for a simple fracture just above the condyles, while he had a compound fracture of the tibia and fibula in the same limb. It can be used in place of a Hodgen's splint in fractures of the shaft of the femur if plating is contraindicated. Limbs on this splint are easily handled, and patients find it comfortable. I believe that it would be very useful for military purposes.



The splint has been made for me by Messrs. Mayer and Meltzer, Great Portland-street, London, W.

R. D. MOTHERSOLE, M.D., M.S. Lond.,
Bolton. F.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, AUGUST 22, 1914.

Food and War.

ALL the news which we receive from different sources, all the official intimations, and all the inferences to be drawn from price lists point alike to the happy conclusion that this country may for a long time expect to escape the grip of hunger that is so regular an accompaniment of war. Comparative plenty as yet prevails, a fine harvest has, we understand, every prospect of being successfully gathered, and the national position on the sea has been grandly established by the maintenance of most of the trade routes. The duration of the struggle no man can estimate, and it behoves us all to assist in a strict national economy of food, while the money so saved wherever possible should be employed to meet the needs of those who are especially suffering. But national economy is directly opposed to individual hoarding. Let anyone re-read in the light of present events the story of the lynching of FOULON as narrated by CARLYLE, and having done this a feeling of profound thankfulness will be experienced on hearing that the House of Commons has armed the Government with the power to nip in the bud that which might lead to similar excesses in this country. The Reign of Terror itself might not have come about but for the misdeeds of the *accapareur*, the eighteenth-century precursor of the man who thrives on the "ring," "corner," or "combine." At the Board of Trade leading dealers in foodstuffs have been gathered together by Mr. RUNCIMAN, and on all sides it was agreed that the rise in the price of food which occurred rather suddenly just after the outbreak of war was not due to scarcity or to legitimate apprehensions of scarcity, but had been caused, as stated in the House, by the "greed of better-to-do people, who had really disgraced themselves by placing long queues of motor-cars at the entrances of stores and carrying off as many provisions as they could persuade the stores to part with." This long sentence is fully summarised by the one French word of sinister historical significance, *accapareur*. The evil, therefore, was among us, and it was quite time that precautionary measures should be taken; for here and there the crowd had commenced to take the law in its own hands. In several districts shops were sacked, and in some instances the greedy purchasers of food in bulk were menaced.

The meeting at the Board of Trade showed that the wholesale distributors and the retailers were, like their customers, suffering from inflated prices; the individual pig was the sinner and not the public purveyor. The producers and importers who, in the face of a sudden influx of orders, raised their prices, though no lack of provisions justified such an increase, may not escape blame, but they have repudiated such tactics for the future. Now that the Government is endowed with the right to requisition foodstuff, it must exercise this power to prevent any rise in prices due, not to the absence of supplies, but to the greed for profit. A long war is a grave trial to the poorer classes. The public spirit being manifested is quite admirable, as shown by the spontaneous cessation of strikes and lock-outs, and the abeyance of political struggles in Ireland; and the Government, by the amnesty granted to workmen imprisoned for deeds of violence during strikes and to suffragettes for still greater deeds of violence, has shown that our rulers recognise the prevailing spirit. By one and all the need during war time of absolute union and harmony among ourselves is unanimously recognised. But hunger is an unruly councillor, and measures of repression or reprisal cannot be lightly contemplated if national scarcity should call for them. The opening of the war has shown us some of the best troops in Europe breaking down and failing in their duty for want of food. Obviously, therefore, an undisciplined industrial population should be submitted to such strains as little as possible. Those who have means must suffer with their poorer brethren.

If these considerations are obvious to all, to us, whose concern is mainly the physiological and medical point of view, their importance becomes more and more pressing. Those who do not rebel against hunger become through starvation useless citizens. We may be but at the opening of a war period destined to remould the whole condition of Europe. The last war of this description was prolonged with but brief intervals of peace from 1792 to 1815. But whether it be quick peace or lengthy war we have to take thought now; we have to see now that nothing happens to affect the vitality and stamina of the British people. We know from the results of school inspection and the returns of recruiting officers—and know it much more in this way than from the bleatings of half-informed orators—that we have among us too many persons who default from a reasonably high physical standard, and here the respective parts played by bad housing and bad food can be largely estimated. Legislation exists to meet these troubles in various ways, and the present war provides an excellent opportunity for insisting that the people must be fed. Even in times of peace medical treatment is of sadly less use if the patient has not sufficient air, light, warmth, and food. If the healthy are to a marked extent deprived of these, or any of these, they soon fall ill. But if food, cheap food, is so needed in times of peace, this necessity becomes much accentuated in times of war. The Government has already taken

measures to prevent famine prices. We cannot all go to the fighting line, but we can all help, in one way or the other, to maintain the vigour of the nation by mitigating the depressing effects of poverty and want.

The English Milk and Dairies Act.

THE Milk and Dairies Bill, introduced by Mr. HERBERT SAMUEL in May last,[1] occupied several days of a Standing Committee of the House of Commons, and has since passed both Houses of Parliament. It is to come into force next year, unless, as seems probable, the Local Government Board exercises its power to postpone the date on which the Act will take effect. Many changes were introduced in the Committee, but these were essentially on matters of detail, and the general effect of the measure has hardly been altered. An important provision was added, at the instance of Mr. WALDORF ASTOR, to enable the Local Government Board by regulation to prescribe the conditions under which milk is permitted to be sold as "certified milk" and to prevent the use of the term "certified" in the sale of milk which does not comply with these conditions. Some changes were also introduced in the Bill so as to require regulations to be made for the inspection of imported milk and milk products, while the clause authorising sanitary authorities to maintain depôts for the supply of milk for infants was amended so as to require that the sale should not be at a rate under cost price. The smooth passage of the measure, which touches acutely a large number of different trading interests and seriously affects an agricultural industry well represented in Parliament, is highly creditable to the persistence and industry of the present President of the Local Government Board, and a testimony to the Parliamentary skill which he is well-known to possess. The new Act is one which, so far as legislation will carry, marks a great advance on the present unsatisfactory state of affairs, while if properly administered it should do much to promote the public health, particularly of infants and children. Mr. SAMUEL deserves the thanks of the medical service and the public for having removed a defect in the public health law which has for years called in vain for remedy.

New regulations are authorised by the Act for the prevention of infection, the inspection of dairy cows, the prevention of the contamination of milk in transit or delivery, and various other matters. These will need to be carefully framed, and the Local Government Board has to obtain the consent of the Board of Agriculture to their issue. We see no reason to fear that public health interests will be jeopardised by this arrangement, as it is clear that the better class of dairymen and cowkeepers fully recognise that their interests lie in the production of pure milk. The Board of Agriculture, which already has special powers for dealing with tuberculosis in cattle, may be expected actively to promote any measures which diminish the infectivity of tuberculosis among dairy stock, while Members of Parliament who, like Mr. C. BATHURST, are identified with agriculture have given very active support to the Bill. One serious difficulty, however, is likely to confront the local authorities administering the Act. Its operation, particularly as regards bovine tuberculosis, is dependent on a sufficient staff of capable veterinary officers being available. The whole-time veterinary officer in the service of public authorities has evidently a good future before him, and the veterinary profession is likely in consequence of this prospect to have a considerable accession of younger men who will be trained in scientific diagnosis of animal disease and in pathology. They cannot, however, be at once created, and those municipalities which at present have special veterinary officers who are free to go to country districts supplying their towns with milk will look with some apprehension at the loss of these powers of "invasion" under the new Act if the new country veterinary service is not efficient. These special powers will, however, remain for 12 months after the Act has come into operation.

[1] THE LANCET, May 23rd, 1914, p. 1474.

Annotations.

"Ne quid nimis."

PROPRIETARY INFANT FOODS.

IN a report issued this week by the Local Government Board Dr. F. J. H. Coutts discusses the use of proprietary foods for infant feeding, and Mr. Julian L. Baker, F.I.C., describes the analysis and composition of some proprietary foods for infants. According to this report the proprietary infants' foods sold in this country, apart from special preparations of cow's milk, such as humanised milk, condensed milk, and dried milk, may be grouped in five broad classes as follows: I., Foods with a basis of dried cow's milk, but mixed with flour; II., foods consisting mainly of flours, the starch of which is practically altered or altered only by heating; III., foods consisting mainly of flours mixed with a proportion of malt flour or malt extract, but containing much unaltered starch which is not converted during the process of preparing the food for infants in accordance with the directions given on the package; IV., foods containing flours, but also containing active diastase or pancreatic ferment, so that if the food is carefully prepared according to the directions on the package the starch is appreciably altered; and V., foods manufactured from flours, the starch of which has been mainly or partially converted into soluble products during the course of manufacture. Of the number of samples of infants' foods procured for the purposes of this report over 70 per cent. belonged to Classes II. and III., which therefore contain material quantities of starch which remains practically unchanged when the food is prepared according to directions. The general conclusion drawn from the evidence summarised in

this report is that many proprietary infant foods are not in fact suitable for the feeding of infants under 7 or 8 months of age, and that they may cause injury: firstly, from the presence of starch in greater or less amount; secondly, from the presence of excess of carbohydrates—starch or sugar—with relation to the protein and fats; and thirdly, from a deficiency in fat. Dr. Coutts concludes that there is evidence to show that the extravagant statements of some manufacturers and dealers with regard to the value of the infants' foods they sell do in fact mislead many poor people to entertain an exaggerated belief in the virtues of these foods, and to use them for very young infants for whom they are entirely unsuitable or even injurious. Legislative action is suggested which may require that all preparations offered or sold as food for infants should be certified by a Government analyst as non-injurious, and that each packet should contain its analysis. This recent report is a valuable addition to the series issued by the Local Government Board on "public health and medical subjects," and it discloses a good deal of painstaking work.

INFECTION FROM IMPORTED TONGUES.

IN recent years a good deal of attention has been directed at our principal ports to the subject of the possible importation of diseased meat into this country. The importance of this work has been aptly illustrated by a very interesting report presented lately by Dr. E. W. Hope to the Liverpool Port Sanitary Authority, in which it is stated that in consequence of the food inspectors having about the middle of 1913 come across certain indications of disease in frozen ox-tongues imported from South America a systematic examination was ordered of all such consignments arriving at Liverpool. Up to the end of February, 1914, no fewer than 147,501 tongues had been carefully examined, and 3809, or 2·5 per cent., were found diseased. The services of Professor J. M. Beattie and Dr. D. Moore Alexander, of the Bacteriological Department, Liverpool University, were secured to conduct the strictly scientific portion of the inquiry. The number of tongues affected in different consignments varied to a great extent, some being practically free, while other consignments showed a comparatively high percentage of infection. The lymphatic glands at the root of the tongue were chiefly affected, being approximately three times more frequently involved than the "blade" of the tongue. The glands were found softer and more easily broken down than usual, and in some pus had formed, while in others caseation or calcification was taking place. The diseased conditions were shown to be mainly due to actinomycosis, but in some cases tuberculous glands were found, inoculation from which was followed by tubercle infection in experimental animals; in a few instances a mixed infection of actinomycosis and tuberculosis was present. It may be also mentioned that imported ox-cheeks from South America with the submaxillary glands attached have been found showing evidence of actinomycosis. Most of the tongues imported from South America have the lymphatic glands attached, but those from the United States are trimmed, and exported after the removal of the glands; so that it is more difficult in the latter case to find whether the tongue is or is not diseased. As actinomycosis and tuberculosis are known to affect cattle in the United States as well as in Argentina and other parts of South America it is important that the glands should in all cases remain attached to the tongues, so that they may be examined before they are admitted into this country. Actinomycosis, or ray-fungus disease, is produced by the growth of a highly developed bacterial fungus belonging to the group trichomyces; it is mainly seen in cattle and pigs, more rarely in man. It is originally found in plants, barley, and other grasses on which cattle feed; it may occur in animals fed on dry fodder. It can hardly be regarded as a contagious disease of animals. When it attacks man it probably arises from a similar source as that which affects cattle. Abrasions or ulcerations in the mouth predispose to the infection, and it is said to occur frequently in some countries after outbreaks of foot-and-mouth disease. Cases are on record where the bite of an animal has conveyed the malady to man. It is, however, reassuring to learn from Dr. Hope that no human instances have come to light where the sufferer had consumed infected meat. Nevertheless, these imported tongues, if they show signs of disease, should not be admitted to this country whether they cause actinomycosis or not. There is undoubtedly danger of tuberculosis infection in some cases, so that it would be advisable to reject every imported tongue that affords any evidence of glandular infection of whatever sort. It is satisfactory to hear from Dr. Hope that recent consignments of tongues from South America bear evidence that the majority have been more carefully inspected before exportation than was the case in previous years. We understand that Dr. W. J. Howarth, medical officer of health of the City of London, and Dr. Herbert Williams, port medical officer, have issued a joint report on this subject, their conclusions being in the main in the same sense as those of Dr. Hope.

POLYURIA AND BASAL BRAIN LESIONS.

THE pathology of diabetes insipidus remains obscure, but there is some evidence that in certain of these cases there has been a lesion in the neighbourhood of the pituitary gland. This has been shown both by the growth anomalies allied to acromegaly which often accompany descriptions of diabetes insipidus cases, and also by the fact that in many cases there is some limitation of the field of vision, a state of affairs of frequent occurrence with pituitary lesions. Some experiments have b n made[1] which throw some light upon the relation of polyuria to brain lesions. Dogs were operated upon, and in different animals various portions of the brain were destroyed, and the effect upon the urine secretion was noted. The areas thus destroyed were those in the immediate vicinity of the hypophysis; in some animals the hypophysis was also destroyed, either at one operation or subsequent to a previous destruction of brain tissue. Some 18 animals were used. The important fact comes out that polyuria may result even when the lesion is not limited to the hypophysis. In five instances the experimental puncture did not touch the hypophysis, yet polyuria resulted. The type of polyuria thus produced differs in no respect from pituitary polyuria. There is a limited area of brain tissue, situated in the vicinity of the hypophysis, ablation of which induces polyuria. Anteriorly it appears to

[1] Camus, J., and Roussy, G.: Comptes Rendus de la Société de Biologie, 1914, lxxvi., pp. 773 and 877.

be bounded by the optic chiasma and posteriorly by the protuberance; the area exists in the vicinity of the infundibulum. An observation was that if the hypophysis were removed but the infundibulum preserved there was no polyuria. Basal destruction affecting this special area, following a previous hypophysis ablation, increased the degree of polyuria. The writers consider that this zone of tissue appears to regulate the retention of water in the organism. They found also that this mechanism was less perfect in young animals than in old. It is a function which seems to have some general controlling effect upon water retention, and which assumes a greater significance and value as age advances. It is possible that observations of this nature may aid in furnishing additional data for the localisation of basal tumours.

DIET AND TUBERCULOSIS.

WE have received an interesting report upon an investigation into the dietary of the labouring classes of Birmingham with special reference to its bearing upon tuberculosis. It has been carried out by Dr. A. E. A. Carver and published by authority of the Public Health and Housing Committee of the corporation of Birmingham. The questions to which the investigation was directed are especially the following: Can the labouring classes, with their present means, obtain a proper dietary? If proper dietary is within their reach, do they obtain it? Has their dietary any bearing upon the prevalence of disease, particularly tuberculosis, among them? Comparisons were made upon 80 families in Birmingham or its immediate neighbourhood, the heads of which were willing to supply the necessary information. In 40 of the families the members were healthy, and in the other 40 one or more of the members were suffering from tuberculous disease, so that the families are divided into two main classes—the tuberculous and the healthy. They are subdivided into five groups according to the income, the first being composed of families whose total weekly income was under 25*s.* a week, the second those with weekly incomes from 25*s.* to 29*s.* 6*d.*, the third from 30*s.* to 35*s.*, the fourth from 36*s.* to 42*s.*, and the fifth with incomes over 42*s.* a week. Almost all the necessary visiting was done by the nurses of the General Dispensary's Tuberculosis Department, who were equipped with tested spring balances and specially prepared note-books. A daily visit was paid during the whole period of the study to each family, and every article of food brought in was weighed and the price noted. Tables showing the foods in most general use, with their composition, energy value, and predominating price per pound in Birmingham during the time of the investigation, are given. Some very interesting results were obtained in regard to the energy value of the dietaries. It was found that the last three healthy groups obtained a dietary with a caloric value approximate to that generally recognised as sufficient for a man doing moderate work, which is given as between 3000 and 3500 calories—the highest of them giving an average of 3178 calories. The two poorer divisions of the healthy group are slightly below 3000. It is somewhat significant to notice that in all five divisions of the tuberculous series the energy value of the food is on an average below 3000 calories, the average for all the groups being 2667 calories. Dr. Carver summarises his conclusions by pointing out that the total energy value of every tuberculous group is below the standard which he advocated—namely, 62 grammes of protein, 110 of fat, 425 of carbohydrate, giving a total energy value of 3020 calories, a standard which is by no means a liberal one, more especially in protein. He also points out that in every tuberculous group it is below the standard obtained in the healthy groups. The quantity of protein shows but little variation, and that an irregular one, in all of the groups. It is always below Atwater's standard. There is apparently a most unmistakable craving for more fat. The healthy groups always succeed in getting more fat than the corresponding tuberculous groups. In regard to carbohydrate the experience of the healthy groups shows that about 425 grams is a suitable quantity for a moderate worker. None of the tuberculous groups attained to this standard. The deficiency in the energy value in the tuberculous groups is due to shortage of fat and carbohydrate. From a careful analysis of his results and from the experience afforded through his visitors, Dr. Carver concludes that the labouring classes both need and desire instruction in food values, and he recommends that such instruction should be given to girls from the ages of 12 to 14 at elementary schools and to mothers at special classes, at mothers' meetings, and at their homes, by competent district visitors. At the present time such information would seem to us to be of a special value when the question of husbanding the national food-supply owing to the exigencies of war is desirable.

WOUNDS IN THE REVOLUTIONARY WARS.

Alsace and Lorraine were the scene of perpetual combats between the Napoleonic forces and the Austrian and Prussian armies. In Erckmann-Chatrian's "Histoire d'un Paysan," an admirable sequence of romances dealing with the wars between 1780 and 1815, the horrors of that time are depicted with masterly fidelity. But surgery has wrought one great change. The soldiers' greatest foe after battle a hundred years ago was not famine or pestilence, or the wandering and starving village dog, not the forest wolf, nor even the camp follower so vividly described in Hugo's "Les Misérables"; it was the putrescence of wounds. The *paysan* of the famous French romancists, who was assuredly an actual person, describes with much vividness and detail how he encounters an old comrade lying under the colonnades of the town hall at Phalsbourg in 1795. The man has been wounded in the hip by a "biscayen," and his wound is so offensive as to cause nausea to those near him. He is carefully nursed in a private house, but his presence there is such a danger to health that only the brave Dr. Steinbrenner—surely a historic personage—and the peasant and his wife can venture near him. The local midwife, acting as nurse in those days before the Red Cross was known, is driven away from her improvised bed on the landing. The drawing forth of the "biscayen" causes the sick man to groan so loudly that his voice is heard through the floor of his room. Surely a vivid touch. The horrible carnage of battle continues to-day, but modern surgical science has triumphed marvellously over the still greater horrors that in old times were wont to follow.

A RESPIRATORY TRACT IN THE MID-BRAIN.

IT has for some time been suggested by Marckwald and others that there exists in the brain of the higher animals a centre which in some way regulates respiration. The exact location of such a centre has not as yet been forthcoming, but it was supposed to be probably in the formatio reticularis at the level of the posterior colliculi. In the *Journal of Physiology* (1914, vol. xlviii., p. 32) Dr. Graham Brown records an observation which goes strongly to prove the presence of such a respiratory controlling area. The animal used was cercopithecus callotrix. The brain was exposed and divided in the region of the thalamus. On a certain area, to be presently noted, rapid faradic stimulation by the unipolar method resulted in immediate gasping of the animal. There was also rapid panting, and the abdominal muscles contracted and relaxed strongly and rhythmically each second. That these effects were due to the particular site and character of stimulation was shown by the fact that withdrawal of the stimulation caused immediate cessation of the movements. There was also no after-discharge. The area, too, was very limited, and stimulation 1·5 millimetres away from it showed no effect. The site of this "respiratory" area was 3 mm. from the aqueduct, just to the side of it, at a point on the efferent tract (recto-bulbar?) of the anterior corpora quadrigemina. This is an isolated observation, but if confirmation is forthcoming it will add still another nervous centre to those already located as responsible for certain coördinated and automatic actions.

FOR several years the medical profession in Canada have hoped for a Department of Public Health in the Dominion Government, but it has now been practically decided that public health matters can be best prosecuted by the Public Health Branch of the Canadian Conservation Commission, which is under the control of Dr. Charles A. Hodgetts.

JULY AT HOME AND ABROAD.

At Home.

ALTHOUGH last month was far brighter than the July of 1913 in this country it was relatively dull when compared with the average, as well as showery. Over England generally there was at least an hour per day less sunshine than that given by a normal July. There were many days with only an hour or two, and several with less than an hour, but an absolutely sunless day was very rare. At the Kew Observatory the dullest day was the 3rd, when the sunshine was less than a quarter of an hour, and the brightest the day following, when the sun shone in a cloudless sky and yielded a total exceeding 14 hours. The aggregate number of hours for the month was only 152, against an average of 204 hours. The more central districts of London recorded a similar total; at South Kensington the figure was 155 hours. Along the south and south-west coasts, and also on the south-east coast, the sun was more generous, but nowhere was the sky as clear as usual. At Newquay the total was 174 hours, and at the Scilly Isles 170 hours, or 48 hours less than the average, while on the other side of the Channel, at Jersey, the total figure, 200 hours, was 47 hours below the normal. A similar divergence was general inland; at Nottingham the sun shone for 139 hours instead of for 190 hours, and at Bath for 180 hours instead of 204 hours. The hottest days of the month were quite at the beginning, when the temperature rose to nearly 90° in London and to far above 80° over a considerable portion of the country beyond. Thunderstorms arrived, however, followed by a much lower temperature, and subsequently the thermometer only made a few feeble attempts to rise above the normal. During the last ten days or so the air was decidedly cool for the time of year, the thermometer failing to reach the moderate level of 65° on some days. At Kew the mean maximum temperature was a little below 71°, a figure just equal to the normal, while the mean minimum, 55°, was nearly a degree above it. Over the country as a whole there was little difference from the average in the mean temperature, in spite of the fact that on most afternoons the maximum was rather low for the time of year. At Harrogate the mean maximum was 67° and the mean minimum 52°, both values being just 2° above those at Buxton; and on the south coast, at Brighton and Bournemouth, the mean maximum was almost identical with that at Harrogate and the mean minimum some degrees higher. At Brighton the mean minimum was no lower than 58°, 3° higher than that at Kew, and the mean range of temperature for the month was unusually small—only 10° against 16° at Kew and Bath.

The month as a whole was not wet. Although rain fell on many days the quantity was seldom large, the chief exceptions accompanying the occasional thunderstorms during the first fortnight. At Kew the aggregate was no more than 1·70 inches, whereas the average for July is 2·30 inches. In the south-west of England, however, several localities received considerably more than the normal, although not nearly enough to counterbalance the drought of the three months preceding.

Abroad.

Over the nearer regions of the continent, in the Netherlands and the greater part of France, extreme heat was very rare, and rain quite as frequent and generally heavier than in the south of England. At Paris there were few afternoons with the thermometer above 80°. The first day was the hottest, as in London, and a maximum of 90° was recorded, but on several days towards the end of the month the thermometer remained below 70°, and the mean maximum was only 73°, 2° higher than at Kew. The temperature of the nights was practically the same as in London, the mean minimum value being 55°. At Brussels the temperature as a whole was identical with that at Paris, although on several individual days there was a striking difference. On the seaboard of northern France and of Belgium and Holland the general state of the weather differed little from that along the southern and south-eastern coasts of England, and the temperature of the daytime was usually several degrees lower than in the inland cities. In central Europe the weather conditions were more settled and the temperature appreciably higher. Maximum readings above 80° were the rule instead of the exceptions, and on more than one occasion the figure of 90° was recorded. At Berlin the mean maximum was as high as 79°, and had it not been for some much cooler days during the last week the figure of 80° would have been surpassed. The nights were also much warmer than those at Paris and Brussels. Several nights were no cooler than 65°, and the mean minimum temperature was 61°.

ASYLUM REPORTS.

Brighton County Borough Asylum, Haywards Heath (Annual Report for the Year ending Sept. 30th, 1913).—Mr. Charles Planck, the medical superintendent, reports that the number of patients in the asylum at the end of the year was 802, the average daily number resident being 819. The direct admissions amounted to 156, of which 42·1 per cent. were deemed curable. There were 99 discharges, with a percentage of 31·7 recoveries on the direct admissions. Ninety-four deaths occurred, the death-rate amounting to 11·5 per cent. Of these, 10 were due to tuberculosis and 3 to dysentery.

Royal Eastern Counties' Institution for Idiots, Imbeciles, and the Feeble-minded, Colchester (Annual Report for the Year 1913).—The total number of patients under care was 421, the average daily number in residence being 383, which is 50 per cent. more than it was nine years ago. Such an increase is exceptional among charitable institutions, and is evidence that the public think that the institution is doing useful work in the Eastern counties. The number of admissions was 48. The average age on admission was

13 years. The discharges amounted to 13. During the last ten years, omitting cases which have been sent to other institutions, only 1·1 per cent. of the patients have left permanently. Dr. F. D. Turner, the medical superintendent, remarks that this institution provides almost complete permanent care, to a far greater extent, he believes, than any other charitable institution for defectives in England. The number of deaths was 20, with a percentage of 15 from tuberculosis. An epidemic of scarlet fever occurred; there were 11 cases at irregular intervals in six months. Dr. Turner notes the curious fact that, according to his experience, the incubation period of scarlet fever among mentally defectives may be anything up to 23 days. With regard to the training of the children, Dr. Turner is convinced of the importance of beginning of manual training at an early age, but he is not among those who believe that the ordinary defective will ever become largely self-supporting. If the high and low grade cases be taken together, an average net profit of 1*s.* per week per head would be evidence of good work, and in most cases it is doubtful if this result would be obtained. Speaking of the Mental Deficiency Act, Dr. Turner says that it is an astonishing fact that these institutions, which for years have been doing the State's work of looking after these poor people, are not to be directly assisted in their work by the Government, and it cannot be too widely known that the new Act only provides for limited classes of defectives, and only for these classes under special circumstances.

Barnwood House Hospital for the Insane, near Gloucester (Annual Report for the Year 1913).—The number of patients in the hospital on Dec. 31st, 1913, was 157, and the number of boarders was 1. The daily average number in residence was 150. There were admitted 8 males and 25 females. Over 75 per cent. of the patients are likely to be under care for the rest of their lives. Speaking of etiological factors, Dr. J. G. Soutar, the medical superintendent, says that the systematic study of instability of character in children affords scope for investigation which may prove of great service to the community. It is not enough for the criterion of mental efficiency to be a purely intellectual one. The brain faults which most surely lead to wreck of mind are those which reveal themselves in what we speak of as character. The character training of the unstable child is thus of the utmost importance. There were 22 discharges, of which 2 were typical examples of dementia præcox. Dr. Soutar remarks that these cases may become free from all manifestations of active mental disorder, yet according to his experience they never completely recover in the scientific sense, and that sooner or later there is always a recrudescence leading to profound dementia. These cases must be differentiated, not by the result only but by the features of the disorder, from the cases of mania, melancholia, confusional and delusional insanity occurring at the period of adolescence. There were 4 deaths, the death-rate on the daily average number resident being 2·66 per cent.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Metropolitan Borough of Woolwich.—Dr. Sidney Davies includes in his report for 1913 the results of inquiries as to the habits of persons in Woolwich suffering or dying from cancer during two years, particularly in regard to their consumption of alcohol, tea, meat, and tobacco and the existence of constipation. The series relates to 120 cases, and the information obtained is compared with corresponding data in a sample population of 108, made up of persons dying from other causes than cancer at ages over 50, or still alive at advanced ages. The comparison showed an incidence of cancer which was heavier among users of alcohol and tobacco in excess, though it was not great when cancer of the mouth and throat were excluded. The figures are too small to be of value in themselves, but a collection of similar data among a larger population and over a more extended period might yield useful results. For such information to be obtained, however, some system of notification of cancer would be needed; inquiries made of relatives and others after a man has died as to his personal habits can seldom be very reliable. Referring to the excessive prevalence of diphtheria in the parish of Woolwich, Dr. Davies refers to the fact that this disease is liable to haunt a particular locality persistently for several years. Ten years ago the same parish was conspicuously free from diphtheria by comparison with the rest of the borough. At each period the localisation of the disease seemed to be due to its having become endemic in certain of the elementary schools, and the high rate in Woolwich parish in 1913 is attributed to the invasion in this way of the Wood-street school, the largest in the parish area. As the borough of Woolwich is noted in the Local Government Board tables for 1913 as having shown the highest sickness rate of diphtheria (3·3 per 1000) in any London borough, it is interesting to note that Dr. Davies finds that many deductions have to be made for wrong diagnoses, and that the corresponding rate stated in the report is only 1·9 per 1000. The figures in the report, however, are somewhat puzzling, as when the 244 notified cases of true diphtheria are added to 77 notified cases excluded as not diphtheria, the total of actual notifications, 321, is still less than the total of diphtheria cases removed to hospital, which was 370. Particulars are given with regard to the "High Street Flats" area, which appears to contain much unhealthy slum property, in which some 273 persons are lodged. Attempts to get the owners to take joint action for the improvement of these dwellings failed, and the medical officer of health represented the area to the London County Council as "unhealthy" under Part II. of the Housing of the Working Classes Act. The report states that the County Council has refused to take action; it would have been interesting to know the grounds on which the refusal was based. A considerable number of houses in North Woolwich are being demolished to make room for the extension of the South Albert Dock, and the provision of houses for the persons displaced has been made a condition precedent to demolition. The houses let in lodgings in Woolwich are many, but only 432 are registered, the public health committee apparently considering that a larger number would not add to the improvements which can be obtained by registration. Dr. Davies considers that inspection of these houses ought to be made by a woman inspector, and regrets that no such inspector is available. The provision by the borough council of baths for workmen at their dust destructor has not proved a great success, and the report suggests that if spray baths were substituted greater use would be made of the washing facilities. In 202 routine investigations made in respect of zymotic enteritis in houses of all classes in the borough special note was taken of the accommodation provided for food storing. In 111 cases food was stored in unventilated cupboards, usually in the kitchen near the fireplace; in 61 cases there was no provision at all, and food was kept on open shelves; in 20 cases it was kept in a safe provided by the tenant; and in only 10 cases was there any efficient larder accommodation.

Metropolitan Borough of Holborn.—Dr. W. A. Bond has to deal with a part of London which is becoming more and more important as a business centre, and steadily diminishes in resident population. The latter is somewhat cosmopolitan; the 49,357 inhabitants at the Census of 1911 comprised 1488 Italians, 956 Germans, 709 French, 487 Russians, 294 Austrians, and 288 Swiss. More than 300 of the worst houses in the borough have now been reported on in detail under the Housing Regulations, and action has been taken on these reports. In many cases the owners agreed to close the premises for reletting on building leases, and it was only necessary to make closing orders in four cases. Negotiations for the erection by the council of working-class dwellings in Shorts Gardens—formerly a particularly unwholesome corner of central London—are now practically completed. The Passmore Edwards Settlement School for Mothers was opened during the year, and includes a "baby clinic" held every Monday afternoon. This is organised in close association with the Holborn public health department, and is attended by the lady sanitary inspector. In order to encourage a continuance of breast-feeding amongst poor and deserving mothers 96 dinner tickets were distributed to enable them to obtain a sixpenny dinner at a restaurant in the borough. The register of houses let in lodgings includes 641 houses, 41 having been added during the year. Notices were served for 24 overcrowded rooms, and 222 notices for other breaches of by-laws applicable to this class of house. The report refers to the reasonable demand of the borough

councils in London for powers to compel occupiers of premises to place house refuse in proper receptacles in such convenient positions for removal as the sanitary authority may require. Ice-cream making, which formerly was carried on in this district under very unsatisfactory conditions, is now closely supervised, but occasional infringements of the regulations are still met with, and the report refers to two prosecutions for preparing ice-cream in bedrooms.

Metropolitan Borough of St. Pancras.—During the autumn of 1913 a special inquiry was instituted into all shops in St. Pancras where milk is sold, and Dr. T. Shadick Higgins reports that the results were far from satisfactory in the case of shops selling milk as part of their general trade. There were 389 shops at which milk was sold by registered persons; 93, or 24 per cent., sold usually one gallon or less per day, and 109, or 28 per cent., from one to two gallons. The principal type of shop at which these small quantities are dealt with is the chandler's or huckster's shop, which have no milkround attached to the business. Most of these were so lumbered with articles or goods that the floor could not be kept clean; in many a large number of dirty goods were kept for sale, and the premises were quite unsuited for the milk trade. The milk vessels were not properly covered or protected from flies, a defect also observed on premises of the regular dairyman. Some of these general shops were in direct communication with sleeping rooms. Dr. Higgins concludes that in over 100 of the shops the conditions are very bad, and so long as the class of trade that is carried on in them remains as it is they can hardly be made suitable for the sale of milk. Conversation with the shopkeepers made it clear that the majority of those who sell only small quantities of milk do not do so for the doubtful profit which they make, but in order to attract customers for their other goods, and many would even be pleased to give up the trade if their competitors did the same. Quite apart from the powers which local authorities generally will obtain under the new milk legislation, those which at present exist in London are ample to provide a remedy for the state of affairs described in this report. The borough council has only to enforce, strictly and impartially, the power of removing unsuitable premises from the register which it possesses under Section 5 of the London General Powers Act, 1908. The report states that the St. Pancras council has removed from its register a number of milk-sellers with unsuitable premises during the present year, no doubt in consequence of this investigation. No borough scheme for the dispensary treatment of tuberculosis had been formulated in 1913, but two tuberculosis dispensaries were in active work, the St. Pancras dispensary, the committee of which includes representatives of the borough council and the medical officer of health, and that at University College Hospital. The first of these institutions has received formal approval from the Local Government Board and grants in aid, the borough council undertaking to take over the dispensary if the committee fail to maintain it to the Board's satisfaction. At the end of 1913 formal approval to the second had been withheld until the dispensary had come to some arrangement with the councils of the boroughs in the neighbourhood, with a view to its serving a definite area of local government.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 97 English and Welsh towns 7478 births and 4164 deaths were registered during the week ended Saturday, August 8th. The annual rate of mortality in these towns, which had been 11·6, 11·3, and 12·1 per 1000 in the three preceding weeks, declined to 12·0 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 11·7, against 11·4 per 1000 in London. Among the several towns the death-rate ranged from 2·2 in Ealing, 5·2 in Reading and in Bath, 5·7 in Ilford, 6·1 in Wimbledon and in Bournemouth, and 6·2 in Brighton, to 17·0 in Liverpool, 17·1 in Swansea, 18·5 in Bootle, and 19·3 in Dewsbury.

The 4164 deaths from all causes were 28 fewer than the number in the previous week, and included 548 which were referred to the principal epidemic diseases, against numbers increasing from 394 to 549 in the four preceding weeks. Of these 548 deaths, 332 resulted from infantile diarrhœal diseases, 99 from measles, 52 from whooping-cough, 39 from diphtheria, 15 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·6 per 1000, and coincided with the rate in the previous week. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had steadily increased from 112 to 302 in the four preceding weeks, further rose to 332 in the week under notice, of which 69 were registered in London, 27 in Birmingham, 26 in Sheffield, 22 in Liverpool, 17 in Hull, 16 in West Ham, and 15 in Leeds. The deaths referred to measles, which had been 110, 98, and 104 in the three preceding weeks, declined to 99, and included 33 in London, 13 in Leeds, 11 in Liverpool, 10 in Oldham, 5 in Manchester, and 4 in Birmingham. The fatal cases of whooping-cough, which had been 73, 83, and 71 in the three preceding weeks, further fell to 52 in the week under review; 8 deaths were recorded in London, 5 in Manchester, 4 in Liverpool, 4 in Sheffield, and 3 in Newcastle-on-Tyne. The deaths attributed to diphtheria, which had been 34, 46, and 43 in the three preceding weeks, further fell to 39, and included 7 in London, 5 in Birmingham, 3 in Portsmouth, and 2 each in Walthamstow, Northampton, Stoke-on-Trent, Liverpool, Manchester, and Oldham. The deaths referred to scarlet fever, which had been 26, 28, and 18 in the three preceding weeks, declined to 15 in the week under notice, and included 4 in London. The fatal cases of enteric fever, which had been 12, 14, and 11 in the three preceding weeks, were again 11, of which 2 occurred in London and 2 in Devonport.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily increased from 2862 to 3154 in the 12 preceding weeks, further rose to 3155 on August 8th; 378 new cases were admitted during the week, against 430, 414, and 405 in the three preceding weeks. These hospitals also contained on August 8th 1058 cases of diphtheria, 148 of whooping-cough, 37 of enteric fever, and 23 of measles, but not one of small-pox. The 1033 deaths from all causes in London were 16 fewer than the number in the previous week, and were equal to an annual death-rate of 11·9 per 1000. The deaths referred to diseases of the respiratory system, which had been 128, 86, and 113 in the three preceding weeks, rose to 122 in the week under notice, and were 14 above the number in the corresponding week of last year.

Of the 4164 deaths from all causes in the 97 towns, 159 resulted from different forms of violence, and 342 were the subject of coroners' inquests, while 1224 occurred in public institutions. The causes of 42, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Bristol, West Ham, Bradford, Hull, Nottingham, Portsmouth, and in 71 other smaller towns. Of the 42 uncertified causes of death 7 were registered in Birmingham, 6 in Liverpool, 5 in Gateshead, 3 in London, 3 in Southport, and 2 each in Coventry, Leicester, Darlington, and South Shields.

In the 97 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 9707 births and 4366 deaths were registered during the week ended Saturday, August 15th. The annual rate of mortality in these towns, which had been 11·3, 12·1, and 12·0 per 1000 of their aggregate population, estimated at 18,120,059 persons at the middle of this year, rose to 12·6 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 11·9, against a corresponding rate of 11·5 per 1000 in London. Among the several towns the death-rate during the week ranged from 5·1 in Southport, 5·9 in Swindon, 6·0 in Enfield, 6·9 in Ilford, and 7·0 in Wimbledon, to 18·1 in Sunderland, 18·4 in Barnsley, 18·7 in Tynemouth, 19·2 in Liverpool, and 19·9 in Cambridge.

The 4366 deaths from all causes were 202 in excess of the number in the previous week, and included 588 which were referred to the principal epidemic diseases, against numbers steadily increasing from 394 to 548 in the five preceding weeks. Of these 588 deaths, 348 resulted from infantile diarrhœal diseases, 111 from measles, 65 from whooping-cough, 31 from diphtheria, 19 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·7, or 0·1 per 1000 above the rate in the previous week. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had increased from 112 to 332 in the five preceding weeks, further rose to 348, and included 102 in London, 28 in Liverpool, 22 in Sheffield, 16 in Manchester, 15 in Leeds, 13 in Birmingham, 12 in Hull, and 11 in West Ham. The deaths referred to measles, which had been 98, 104, and 99 in the three preceding weeks, rose to 111, of which 46 were registered in London, 14 in Leeds, 12 in Liverpool, 7 in Oldham, 4 in Sheffield, and 3 each in Birmingham and Manchester. The fatal cases of whooping-cough, which had been 83, 71, and 52 in the three preceding weeks, rose to 65 in the week under review; 20 deaths occurred in London, 4 in

Manchester, and 3 each in Liverpool, Leeds, and Newcastle. The deaths attributed to diphtheria, which had been 46, 43, and 39 in the three preceding weeks, further declined to 31, of which 4 were recorded in Birmingham, and 2 each in London, Southampton, Coventry, and Liverpool. The deaths referred to scarlet fever, which had been 28, 18, and 15 in the three preceding weeks, rose to 19, and included 3 each in London and Birmingham, and 2 each in St. Helens, Warrington, Manchester, and Oldham. The fatal cases of enteric fever, which had been 14, 11, and 11 in the three preceding weeks, rose to 14, of which 4 occurred in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily increased from 2862 to 3155 in the 13 preceding weeks, had declined to 3072 on Saturday, August 15th; 335 new cases were admitted during the week, against 414, 405, and 378 in the three preceding weeks. These hospitals also contained on August 15th 1038 cases of diphtheria, 122 of whooping-cough, 34 of enteric fever, and 18 of measles, but not one of small-pox. The 1056 deaths from all causes in London were 23 in excess of the number in the previous week, and corresponded to an annual death-rate of 12·2 per 1000. The deaths referred to diseases of the respiratory system, which had been 86, 113, and 122 in the three preceding weeks, declined to 117 in the week under notice, but were 2 above the number in the corresponding week of last year.

Of the 4366 deaths from all causes in the 97 towns, 169 resulted from different forms of violence, and 348 were the subject of coroners' inquests, while 1317 occurred in public institutions. The causes of 34, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Leeds, Bristol, Bradford, Hull, and in 58 other smaller towns. Of the 34 uncertified causes of death, 8 were registered in Birmingham, 5 in Liverpool, and 2 each in Preston, Blackpool, Sunderland, and South Shields.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns 1057 births and 509 deaths were registered during the week ended Saturday, August 8th. The annual rate of mortality in these towns, which had been 12·7, 13·5, and 12·9 per 1000 in the three preceding weeks, further fell to 11·6 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 12·9, against a corresponding rate of 11·7 per 1000 in the 97 large English towns. Among the several towns the death-rate ranged from 4·6 in Perth, 5·4 in Hamilton, 6·3 in Motherwell and in Falkirk, to 13·3 in Paisley, 17·0 in Coatbridge, and 17·8 in Kirkcaldy.

The 509 deaths from all causes were 60 fewer than the number in the previous week, and included 64 which were referred to the principal epidemic diseases, against numbers declining from 58 to 49 in the three preceding weeks. Of these 64 deaths, 29 resulted from infantile diarrhœal diseases, 14 from whooping-cough, 6 from measles, 5 from scarlet fever, 5 from diphtheria, and 5 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·5, against 1·6 per 1000 in the 97 large English towns. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had increased from 10 to 31 in the four preceding weeks, fell to 29, of which 19 were recorded in Glasgow, 3 in Dundee, and 3 in Leith. The deaths referred to whooping-cough, which had been 15, 9, and 7 in the three preceding weeks, rose to 14 in the week under review, and comprised 11 in Glasgow, 2 in Greenock, and 1 in Coatbridge. The fatal cases of measles, which had been 12, 8, and 5 in the three preceding weeks, were 6 during the week ending August 8th, of which 4 occurred in Dundee. The 5 deaths attributed to scarlet fever, of which 2 were registered in Glasgow, were equal to the average in the four preceding weeks. The deaths referred to diphtheria, which had been 4, 3, and 3 in the three preceding weeks, rose to 5, and comprised 2 in Glasgow, 2 in Edinburgh, and 1 in Dundee. The 5 fatal cases of enteric fever, of which 3 occurred in Glasgow, were 3 in excess of the average in the four preceding weeks.

The deaths referred to diseases of the respiratory system, which had been 51, 70, and 61 in the three preceding weeks, further declined to 55 in the week under notice, and 28 deaths were attributed to different forms of violence, against 27 and 23 in the two preceding weeks.

In the 16 largest Scotch towns with an aggregate population estimated at 2,293,200 persons at the middle of this year, 1215 births and 608 deaths were registered during the week ended Saturday, August 15th. The annual rate of mortality in these towns which had been 13·5, 12·9, and 11·6 per 1000 in the three preceding weeks, rose to 13·8 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 13·0, against 11·9 per 1000 in the 97 large English towns. Among the several towns the death-rate during the week ranged from 2·7 in Hamilton, 8·2 in Clydebank, and 8·8 in Kilmarnock, to 15·7 in Aberdeen, 16·9 in Perth, and 17·3 in Ayr.

The 608 deaths from all causes were 99 in excess of the number in the previous week, and included 73 which were referred to the principal epidemic diseases, against 49 and 64 in the two preceding weeks. Of these 73 deaths, 36 resulted from infantile diarrhœal diseases, 16 from whooping-cough, 7 from diphtheria, 6 from measles, 6 from scarlet fever, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·7 per 1000, and coincided with the rate in the 97 large English towns. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had been 20, 31, and 29 in the three preceding weeks, rose to 36, of which 18 were recorded in Glasgow, 4 in Dundee, and 3 in Edinburgh. The deaths referred to whooping-cough, which had been 9, 7, and 14 in the three preceding weeks, further rose to 16, and included 12 in Glasgow. The 7 fatal cases of diphtheria, of which 4 occurred in Edinburgh, were 3 in excess of the average in the five preceding weeks. The deaths attributed to measles, which had been 8, 5, and 6 in the three preceding weeks, were again 6 in the week under notice, and included 3 in Dundee. The 6 deaths referred to scarlet fever, of which 2 were registered in Glasgow, were slightly in excess of the average in recent weeks. The 2 fatal cases of enteric fever were recorded in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 70, 61, and 55 in the three preceding weeks, rose to 63 in the week under notice, and 25 deaths were attributed to different forms of violence, against 23 and 28 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland 544 births and 378 deaths were registered during the week ended Saturday, August 8th. The annual rate of mortality in these towns, which had been 16·1, 14·5, and 15·7 per 1000 in the three preceding weeks, further rose to 16·4 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 15·7 per 1000, against corresponding rates of 11·7 and 12·9 per 1000 in the English and Scotch towns respectively. The annual death-rate was equal to 17·3 in Dublin (against 11·9 in London and in Glasgow), 17·9 in Belfast, 14·3 in Cork, 12·7 in Londonderry, 12·2 in Limerick, and 9·5 in Waterford; while in the 21 smaller towns the mean death-rate did not exceed 14·4 per 1000.

The 378 deaths from all causes were 15 in excess of the number in the previous week, and included 40 which were referred to the principal epidemic diseases, against 38 and 52 in the two preceding weeks. Of these 40 deaths, 18 resulted from infantile diarrhœal diseases, 7 from measles, 6 from whooping-cough, 4 from scarlet fever, 4 from enteric fever, and 1 from diphtheria, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·7, against 1·6 and 1·5 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had increased from 13 to 21 in the four preceding weeks, fell to 18 in the week under notice, of which 10 were registered in Dublin, 3 in Belfast, and 2 in Cork. The deaths referred to measles, which had been 14, 8, and 11 in the three preceding weeks, fell to 7, and comprised 5 in Belfast and 2 in Dublin. The fatal cases of whooping-cough, which had been 6, 4, and 9 in the three preceding weeks, fell to 6 during the week ended August 8th, of which 3 were recorded in Cork and 2 in Belfast. The 4 deaths attributed to scarlet fever, which were all registered in Belfast, were equal to the average in the four preceding weeks. Of the 4 deaths referred to enteric fever, which were slightly in excess of the average in recent weeks, 2 belonged to Dublin, 1 to Belfast, and 1 to Limerick. The fatal case of diphtheria occurred in Dublin. In addition to the deaths from the above diseases, one death from typhus was registered in Belfast.

The deaths referred to diseases of the respiratory system, which had been 41, 34, and 42 in the three preceding weeks, further rose to 47 in the week under notice. Of the 378 deaths from all causes, 127, or 34 per cent., occurred in public institutions, and 9 resulted from various forms of violence. The causes of 14, or 3·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 97 large English towns the proportion of uncertified causes did not exceed 1·0 per cent.

In the 27 town districts of Ireland with an aggregate population estimated at 1,205,280 persons in the middle of this year, 597 births and 354 deaths were registered during the

week ended Saturday, August 15th. The annual rate of mortality in these towns, which had been 14·5, 15·7, and 16·4 per 1000 in the three preceding weeks, fell to 15·3 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these towns averaged 15·7 per 1000; in the 97 English towns the corresponding rate did not exceed 11·9, while in the Scotch towns it was equal to 13·0 per 1000. The annual death-rate during the week was equal to 19·1 in Dublin (against 12·2 in London and 14·6 in Glasgow), 14·8 in Belfast, 11·6 in Cork, 17·8 in Londonderry, 4·1 in Limerick, and 13·3 in Waterford, while in the 21 smaller towns the mean death-rate did not exceed 12·3 per 1000.

The 354 deaths from all causes were 24 fewer than the number in the previous week, and included 49 which were referred to the principal epidemic diseases, against 52 and 40 in the two preceding weeks. Of these 49 deaths, 26 resulted from infantile diarrhœal diseases, 8 from measles, 8 from whooping-cough, 3 from diphtheria, 2 from scarlet fever, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·1, against 1·7 per 1000 in the English and in the Scotch towns. The deaths of infants (under two years) attributed to diarrhœa and enteritis, which had been 21, 21, and 18 in the three preceding weeks, rose to 26, and comprised 13 in Belfast, 11 in Dublin, and 2 in Waterford. The deaths referred to measles, which had been 8, 11, and 7 in the three preceding weeks, were 8 in the week under review, and were all registered in Belfast. The fatal cases of whooping-cough, which had been 4, 9, and 6 in the three preceding weeks, rose to 8, and comprised 3 in Belfast, 3 in Cork, and 2 in Queenstown. The 3 deaths attributed to diphtheria, of which 2 occurred in Dublin and 1 in Galway, were slightly in excess of the average in recent weeks. The fatal cases of enteric fever occurred in Dublin and Belfast, and those of scarlet fever in Dublin and Kilkenny.

The deaths referred to diseases of the respiratory system, which had been 34, 42, and 47 in the three preceding weeks, were 46 in the week under notice. Of the 354 deaths from all causes, 120, or 34 per cent., occurred in public institutions, and 10 resulted from different forms of violence. The causes of 4, or 1·1 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 97 large English towns the proportion of uncertified causes did not exceed 0·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of His late Majesty's Order in Council of May 13th, 1901, the undermentioned, formerly a Staff-Surgeon in His Majesty's Fleet, has been placed on the Emergency List:—Stanley Samuel Howard Shannon (dated August 9th, 1914).

ROYAL ARMY MEDICAL CORPS.

The undermentioned are granted the temporary rank of Lieutenant whilst employed with the Army:—Dated August 7th, 1914: Frederick George Chandler, Arthur Joseph Eagleton, George Dearden Jameson, Alma Percy Ford, Reginald Kinloch MacGregor, Harold Young Mansfield, Leonard Colin Somervell, Henry Washington Batchelor, Malcolm Donaldson, Robert Graham Brown, Owen Lambert Vaughan de Wesselow, Kenneth Blackie Aikman, Duncan Westlake Pailthorpe, Charles Stewart Parnell Hamilton, John Frank Taylor, William Henry Dakin Smith, Horace William Hay, St. John Dudley Buxton, Harold Archibald Douglas, Henry Drummond Robb, Alexander Frederic Potter, John Archer Cowan, Maitland Radford, William Muir Howells, Herbert Arnold Watermeyer, Gilbert Charles Chubb, William Kelsey-Fry, Arthur John Waugh, Hamish Morton Anderson, George Christopher Metcalfe, Charles Samuel Eric Wright, John Bramley Moore, Louis Lazarus, Arthur Gordon Haynes Lovell, Howard Alexander Bell, Ernest Scott, William Allan, George Henry Chisnall, Ivan Stuart Wilson, and Martyn Herbert Watney. Dated August 8th, 1914: Charles William Berry Littlejohn, Rupert Strathmore Scott, Vernon Charles Whitby Vickers, James La Fayette Lauder, Percy Patrick Butler, Henry Barton Owens, and William Howard Lister. Dated August 9th, 1914: Edwin Joseph Wyler, Arthur Edward Brown, and Lancelot Gerard Bourdillon. Dated August 10th, 1914: Hugh James Orr-Ewing, David Galloway Watson, Hugh Duberley Willis, Monamy Aston Cornwall Buckell, Claude Charles Harrison, George Maclean Campbell, Robert Duncan Mearns Macpherson, Cyril Sherris, Allan Mann, John Whigham, Ronald Silcock, Cyril Evered Thwaites, John Berry Haycraft, Reginald Samuel Sherard Statham, Cecil Beresford Hogg, Arthur Samuel Glynn, John Dotto, Ronald Hodson, John Stanley Avery, John Luke Jackson, Findlay Murchie, William Oswald Halpin, Frederick Edward Saxby Willis, Cyril James Weston Clayton, Lionel Henry Yorke Stephen, Geoffrey Trevor Loughborough, James Ernest Helme Roberts, Philip William James, Eric Wordley, Basil William Armstrong, and Arthur Ernest Bullock. Dated August 11th, 1914: Edward Worrell Carrington, Ralph Lester Scott, Francis Ruthven Thornton, Herbert Henry Powys Morton, Henry Goodwill Wiltshire, Ernest Ronald Walker, and Walter Seymour Danks. Dated August 12th, 1914: Frederick John Thorne and Joseph Godwin Greenfield. Dated August 13th, 1914: Aubrey Dean Vernon-Taylor, Edward Musgrave Woodman, James Evelyn Thoresby Jones, Thomas Martin, Rex Stansfield, Herbert Walker, Algernon Charles Stanley Smith, Frederick Theophilus Hill, John Sainsbury, George Heaford Varley, Alexander Rentoul Esler, Arthur Francis Savory Sladden, and Kenneth Bruce Dickson. Dated August 15th, 1914: Arthur Keith Armstrong, Raymond Brewitt Taylor, William Llewellyn Gwyn Davies, Harold Sheldon, and Harold Beckwith Whitehouse. Dated August 16th, 1914: Adolph Richard Niel MacGillicuddy, Robert Molyneux Miller, Harold Edward Battle, and Carleton Yates Ford.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Cadet Richard Feltrim Fagan, from the London University Contingent, Officers Training Corps, to be Lieutenant (on probation) (dated August 3rd, 1914). Cyril James Anthony Griffin, late Cadet Sergeant, London University Contingent, Officers Training Corps, to be Lieutenant (dated August 5th, 1914). Frank Cook, late Cadet Corporal, University of London Contingent, Officers Training Corps, to be Lieutenant (dated August 6th, 1914).

Supplementary to Regular Units or Corps.

The undermentioned Cadet Corporals, from the Belfast University Contingent, Officers Training Corps, to be Lieutenants (on probation) (dated July 29th, 1914):—William Napier and Donald Reid Wheeler.

TERRITORIAL FORCE.

Royal Army Medical Corps.

East Anglian Clearing Hospital: The announcement of the transfer of Major James S. Warrack, attached to units other than medical units, is cancelled.

Home Counties Clearing Hospital: Major James S. Warrack, from attachment to units other than medical units, to be Major (dated June 25th, 1914).

North Midland Mounted Brigade Field Ambulance: Lieutenant Thomas D. Buchanan to be Captain (dated August 19th, 1914).

3rd Highland Field Ambulance: Douglas Hay Scott to be Lieutenant (dated August 19th, 1914).

6th London Field Ambulance: Lieutenant Joseph E. Ryan to be Captain (dated August 1st, 1914).

1st South Midland Field Ambulance: the undermentioned to be Lieutenants (dated August 19th, 1914):—Morris Wilks and William Bowater.

2nd West Riding Field Ambulance: Craufurd Tait Matthews to be Lieutenant (dated August 19th, 1914).

3rd London General Hospital: The undermentioned to be Captains (dated August 19th, 1914):—Theodore Gilbert Alexander Burns, Francis Woodcock Goodbody, Francis Howard Humphries, Arthur Edward Dodson, Somerville Hastings, and Raymond Ebenezer Apperly.

4th London General Hospital: Walter d'Este Emery to be Captain (dated August 19th, 1914).

3rd Northern General Hospital: Professor Henry Roy Dean to be Major (dated August 19th, 1914).

3rd Scottish General Hospital: James Robertson Campbell Greenlees to be Captain (dated August 19th, 1914).

4th Southern General Hospital: Edward Revely Clarke to be Captain (dated August 19th, 1914).

5th Southern General Hospital: Captain Edward J. D. Taylor, from the Mobilisation List to the permanent personnel, to be Major (dated August 19th, 1914).

Attached to Units other than Medical Units.—Lieutenant William Murray to be Captain (dated April 16th, 1914). Oswald Lowndes Scarborough to be Lieutenant (July 22nd, 1914). Harold Dearden to be Lieutenant (dated August 19th, 1914). Lieutenant David G. Kennard to be Captain (dated August 19th, 1914).

Supernumerary for Service with the Officers Training Corps.—Cadet Quartermaster-Sergeant Thomas Douglas Inch, Edinburgh University Contingent, Senior Division, Officers Training Corps, to be Lieutenant for service with the medical unit of that contingent (dated August 19th, 1914).

Home and Foreign Notes.

(FROM OUR OWN CORRESPONDENTS.)

SCOTLAND.

Feeding of School Children in Scotland.

A MEMORANDUM has just been issued by the Scottish Office to school boards dealing with the steps to be taken regarding the feeding of school children. It is recommended that arrangements for this purpose should be made everywhere. In the smaller burghs and country districts where no scheme at present exists the school board should be ready to take action as soon as the need arises. The powers possessed by boards will enable them to make arrangements for the provision of meals for all children whose parents desire it, either on payment of a small charge or gratuitously, if circumstances so demand. Where there is any doubt on this point the child should get the benefit of free meals until full inquiries into the home life have been made. These inquiries should be directed towards ascertaining whether the parents are able to bear any of the cost of the meals and whether they are so situated that further assistance is requisite. In a letter accompanying the memorandum emphasis is laid on the necessity of working hand in hand with the local committees formed in connexion with the administration of the National Relief Fund during the war. On these committees it is hoped that school boards will be duly represented.

Royal College of Surgeons, Edinburgh.

The College have decided to add the Imperial University of Japan and Bristol University to the list of universities whose graduates in medicine and surgery may present themselves for the Fellowship of the College without first becoming Members. The South African College, Cape Town, is now recognised as a school of anatomy and physiology for the courses required for admission to the second examination of the Conjoint Board of the Royal Colleges of Physicians and Surgeons.

Insurance Committee for the Burgh of Edinburgh.

Dealing with the question of tuberculosis, the committee have recently accepted the following recommendations: 1. That the Insurance Committee should acquiesce for the current year in the proposal that the corporation of Edinburgh should give sanatorium treatment to dependents, on the understanding that the corporation will agree to meet any deficit emerging in the Burgh Committee's Sanatorium Benefit Fund Account for the year. The estimated deficit was £9350. 2. That in the opinion of this committee the schemes in connexion with nursing, pathological laboratories, and the provision of additional treatment for tuberculosis, as outlined by the Chancellor of the Exchequer in his Budget statement, should not be administered by local authorities and boards to be constituted, but should be placed under the administration of the Insurance Committees.

The Death of Dr. J. Wallace Milne.

The death took place suddenly on the morning of August 13th, at his residence in Aberdeen, of Dr. John Wallace Milne, at the early age of 39 years. A native of New Deer, Dr. Milne was educated at the parish school and Gordon's College, Aberdeen, entering Marischal College in 1891. After completing his college course with honours in several subjects Dr. Milne continued his studies at St. Bartholomew's Hospital before starting practice in Aberdeen. There he quickly acquired a large practice, and in 1900 he was appointed assistant surgeon to the staff of the Aberdeen Royal Infirmary. Dr. Milne held the position of major in the 1st Scottish General Hospital, and had entered on his duties on the mobilisation of those connected with that hospital when attacked with the illness which proved fatal. A sound surgeon and a popular man, his early death is made more sad by the fact that he leaves behind him a widow and a young family.

Dr. W. Hector, of Tarland, has been nominated by the Coull parish council and school board to act under the new Mental Deficiency Act, and the nominations have been approved by the General Board of Control, Edinburgh.

August 18th.

PARIS.

Paris in a State of War.

THE aspect of Paris is entirely transformed. The suppression of omnibuses, the extreme reduction in the number of tramcars and hackney vehicles, the closing of nearly all the shops whose proprietors and employees alike have gone to the front, have already given to the immense city, ordinarily teeming with life and bustle, an entirely unfamiliar aspect. Many automobiles, bearing the Red Cross flag to indicate that they are engaged on hospital duty or that they belong to a medical man, move rapidly about. The greater number of medical men, even those of mature age, in Paris have already gone to take up their posts in the Army Medical Service, and your own correspondent is writing you this, his last letter for some time to come, only a few hours previously to his departure to take charge of an ambulance corps, as *médecin chef* in the army of the East. To attend to the needs of the population of Paris lists of medical men remaining in town, with their addresses, have been posted in the *mairies* of each quarter. The night medical service on duty at each police station has been especially strengthened. Medical men in charge of hospital services have for the most part remained at their posts, but in military *tenue*. Many hospitals have been evacuated and their patients assigned to others, which will be reserved for the people of Paris, who are less numerous at the present time, since the city is emptied of half its population. The others care for the wounded, who are now beginning to arrive, though at present in small numbers. The military direction does not intend to discharge them all into Paris. If the fortune of war should cause Paris to be besieged that would mean too many mouths to feed, and in case of distress too many patients to be transported from the city. The evacuation of the wounded is directed especially towards the hospitals of cities most likely to be removed by distance from probable attack by the enemy—Lyons, Nantes, Rennes, Caen, Bordeaux, and so forth. Also the generous offers made by the residents of large mansions and by the proprietors of the huge shops to transform their premises into private hospitals have been superabundant, so that the greater part of them have had to be declined by the administration. Certain of these persons, it appears, moreover, in making these charitable offers have thought to retain their

automobiles, and, owing to the protection afforded by the Red Cross flag, to avoid the requisition which pitilessly falls upon all these vehicles. An innumerable quantity of places, with beds, material, and personnel, has been put at the disposition of the Government. The Faculté de Médecine with its vast halls and the buildings of the practical schools of the Faculty are henceforth converted into ambulance stations, as well as all the lycées, the public and private schools. The wife of the Minister for War has established by public subscription a vast ambulance organisation in the premises of the École Polytechnique, under the control of Professor Chantemesse. The principal fear of the latter is lest infectious diseases should break out in epidemic form in consequence of the enormous shifting of population and the movements of troops, as happens in all large wars. In preparation against small-pox the Prefect of Police has ordered a general revaccination of the population of Paris. Huge quantities of antityphoid serum have been prepared. The Institut Pasteur has been placed under military control (*a été militarisé*) and is preparing vaccines night and day for the Ministry of War. A police order has proved effective in calling attention to the need for boiling milk during the period of great heat, to prevent the development of gastro-enteritis. As to the drinking-water, the supply appears amply sufficient; precautions have been taken to guard the sources and secure them against being poisoned by German spies; the extraordinary instances of barbaric ingenuity that are discovered daily among them lead to the thought that this fear, which at any other time would have been considered romancing, is not incompatible with what is known of their desire to inflict injury. It is impossible at this moment to make any observations on cases of interest from the point of view of military surgery, as the Government allows publication of no news except that furnished by itself, and exercises a rigorous censorship over the papers. Meanwhile, the population of Paris decorates the city en fête with flags—French, English, Belgian, and Russian.

August 15th.

INDIA.

First Ambulance Field Day in India.

THE first ambulance field day in India was organised recently at Simla by the Assistant Commissioner of the St. John Ambulance Brigade. The general idea of the scheme was that a northern brigade with its headquarters at Simla was operating against a southern brigade with its headquarters at Subathu. The two forces had met at Jutogh, and the northern brigade had driven the southern brigade back on Subathu. Both forces sustained heavy losses, and the St. John Ambulance Brigade was called out to take over the care of the wounded and sick and to relieve the regular medical services who were required to accompany the northern brigade marching on Subathu. The Simla corps of the St. John Ambulance Brigade paraded under the command of ambulance officer P. H. Marshall, and the nursing sisters of the Simla Nursing Corps paraded under the command of Lady Superintendent the Honourable Mrs. Spence. The number of casualties in the engagement between the northern and southern brigades was given as 84. Of these there were 20 able to walk, 50 fit for transport sitting up, 10 fit for transport lying down, and 2 unfit to be moved. In addition to the 12 wounded the southern brigade left behind two medical cases—viz., a case of rheumatic fever and a case of small-pox. The 20 fit to walk and the 50 fit for transport sitting up were sent to Simla in rickshaws, 100 of which had been commandeered for the purpose. No form of transport for lying-down cases was available. The St. John Ambulance Brigade therefore had 14 severe cases to deal with, and the brigade personnel in less than an hour improvised from scanty material and three empty rooms a general ward, an operating theatre, and an isolation ward. The sick and wounded were dressed and actually put to bed, and those requiring it were got ready for operation in 45 minutes. The inspecting officer, Colonel Patrick Hehir, Deputy Director of Medical Services, Army Headquarters, at the close of the proceedings congratulated all concerned.

The Death-rate in Bombay.

The Honourable J. P. Orr lectured recently at the Improvement Trust Office on the "Density of the Population of Bombay." The population per acre, he said, varied from 112 to 1179. "In six circles the population has been at one or the other censuses over 900 per acre, in 23 others it has been over 600 per acre, and in 41 others over 300 per acre: and there are only 13 in which it has never been over 300 per acre, i.e., nearly double the density of population in New York. The average density in 1911 for the various sectional areas varies from 183 in Dongri to 638 in 2nd Nagpada." We should naturally expect that where there is great density of population combined with great congestion of buildings, so that the residents do not get sufficient light and air, there would be a higher death-rate than in better developed and more thinly populated localities, and so the mortality returns show it to be in Bombay. Referring to a chart which was prepared to compare the mortality of the trust's tenements with those of the sections in which they live Mr. Orr said: "It will be seen that in every case the chawl rate is far below the section rate, and in every case below the city average. All this makes it clear that the Bombay corporation should aim at thinning out the population of the congested slums and getting the people to migrate to well developed estates in the sparsely populated areas."

Cocaine Eating in Bombay.

Although almost every other day cases of conviction for dealing in cocaine are reported, and although the authorities have long prosecuted a rigorous campaign against the traffic, victims of the cocaine habit are still very numerous in Bombay, and large quantities of the drug are daily sold. According to Major Arthur Tuke, I.M.S., who has an interesting article on the subject in the *Indian Medical Gazette*, the habit is prevalent among the upper as well as the lower classes, and Mahomedans are the greater consumers. Apart from the physical harm done to the victim, this habit is producing endless petty thefts and crime. The confirmed cocaine eater consumes as much as 60 grains a day, the price being about 3 annas per grain. Once having acquired the habit he cannot endure even a reduction of his daily dose, much less do without it altogether. Somehow he must find 180 annas a day to satisfy his craving. In the case of the poorer victims the usual resort is theft.

A Surgeon's Fees in Burma.

An interesting case was disposed of by the Judicial Commissioner of Upper Burma last month. The plaintiff applicant, Captain Lack, I.M.S., civil

surgeon, Bhamo, sued originally in the Small Cause Court P. Gullegher, of the Telegraph Department, for the recovery of Rs.32, being his fees for two professional visits to the defendant respondent's wife. The judge in the Small Cause Court gave plaintiff a decree for Rs.4 only, to be paid by two instalments of Rs.2, and refused him costs, relying on the case Rawlins *v.* Daniel (2 Agra 56), where it was held that, in the particular case, one-fifth of the monthly income of a defendant was the fair amount to which the plaintiff was entitled for his professional attendance on the family of the defendant, who was a public servant, for a year. The judge also held that the plaintiff was not entitled to claim fees for his second visit because he made it without being specifically summoned, was not justified in refusing Rs.10 which was sent him by a money order, and that his conduct in attempting to charge the defendant's family individually was reprehensible. The plaintiff admitted that he refused to accept the money order for Rs.10 sent by the defendant's wife, and that when the defendant objected to the charge made for the second visit he wrote pointing out that on the occasion of both visits he was asked to attend a child, and enclosed a modified bill charging Rs.32 more, this course being taken to show the defendant that his first bill was not excessive. The defendant admitted that no fees had been agreed upon, and said that his salary was Rs.80 a month, but that his mother, wife, and child were dependent on him and he wished to pay by small instalments. In other words, he did not deny his liability or dispute the correctness of the amount which the plaintiff claimed. The judicial commissioner held that the Agra case, of which the full report was not available, could not be followed, for it was decided by the old High Court of Agra between 1886 and 1888, and there was no means of knowing what the sum there claimed by the plaintiff was, or what the defendant's income was, though it was known that the remuneration for a year's attendance was claimed, and that was not at all what the plaintiff sued for. The only point of resemblance would seem, he said, to have been that no agreement had been come to, expressly, about the fees to be paid. The commissioner pointed out that a medical officer in the position of the plaintiff was a technical expert who had gone through a long and expensive course of training and his services were deserving of proper remuneration. The sum of Rs.4 for his visits was inadequate. His honour said the plaintiff's claim of Rs.16 per visit was reasonable. While he did not approve the plaintiff's modified bill, he did not consider the circumstances justified the court in refusing the costs to plaintiff, who was under no obligation to accept the part payments, while the fact that he only claimed Rs.32 showed his explanation of the modified bill to be correct. With respect to the decision in the Small Cause Court he found the judge's remarks on the plaintiff-applicant's conduct unjustifiable, he had failed duly to consider the facts, and his judgment was not in accordance with law. The decision of the lower court was therefore set aside, and the defendant was ordered to pay Rs.32 to the plaintiff by monthly instalments of Rs.10, with costs.

Remarkable Plural Birth.

A case of plural birth occurred near the Malagumuda Orphanage, Zuckalay, Travancore. The woman is 25 years of age, and is a Shanar by caste. She gave birth to five female children on the night of June 23rd.

Cholera in Ceylon.

According to the latest information, cholera is spreading on up-country estates in Ceylon, and there have been a number of fatal cases. The disease has been brought from the Indian coolie camp at Mandapam by the new route.

July 20th.

Correspondence.

"Audi alteram partem."

ANTITYPHOID INOCULATION IN WAR-TIME.

To the Editor of THE LANCET.

SIR,—With the permission of Sir Arthur Sloggett, Director-General of the Army Medical Department, I beg to ask the hospitality of your columns in the following matter.

Antityphoid inoculation remains, unfortunately, on a voluntary basis in our Army, and it is only possible to secure the benefit of its protection to our troops by persuading the officers and men, first, of the reality of the danger of typhoid fever, and, secondly, of the protective value of the vaccine. Needless to say, no efforts are being spared by the Medical Department of the Army to give effect to Lord Kitchener's strongly expressed wish that as many men as possible should be inoculated, with due regard, naturally, to the exigencies of the military situation. Steps have already been taken to impress this upon all concerned with the medical care of the Home Forces, as had already been done in the case of the Expeditionary Force. Many, however, of the medical officers of the Territorial Force, as well as the newly enrolled civil surgeons, are less familiar than R.A.M.C. officers either with the danger of typhoid in epidemic form, to which the Home Forces will most certainly be exposed, or with the high protective value of antityphoid inoculation. I have no doubt that these officers, and also members of the profession outside the ranks of the Army, will be consulted on the subject by many who are in doubt as to the value or the necessity of the process. In such cases I venture to appeal for the strong support which it will be in their power to give to the efforts we are making to secure the protection of the Territorial Force.

The facts relating to inoculation and its results have been widely published in recent years, and the pronounced benefits and harmless nature of the procedure are admitted by all who have had experience of it. I may, however, refer to a few points which, although well known to army surgeons, are less familiar to others. 1. No army in recent wars has escaped typhoid, which, in several campaigns, has killed more men than the enemy. In the South African war, for instance, there were 57,684 cases of typhoid, of which 19,454 (33 per cent.) were invalided and 8,022 (13·9 per cent.) died. The deaths from typhoid exceeded the total number of men killed in action. 2. It would be most rash, in the opinion of those who have studied the question, to assume that the forces serving at home will not be exposed to the dangers of typhoid in epidemic form. 3. The benefits of inoculation are so well recognised in the Regular Forces that we find little

difficulty in foreign stations in securing volunteers for inoculation; for instance, about 93 per cent. of the British garrison in India have been protected by inoculation, and typhoid fever, which used to cost us from 300–600 deaths annually, was last year responsible for less than 20 deaths. 4. Inoculation was made compulsory in the American army in 1911 and has practically abolished the disease; in 1913 there were only three cases and no deaths in the entire army of over 90,000 men.

The organisation for the preparation and distribution of the vaccine should be equal to all the demands made upon it. In view of the possibility of such an emergency as has now arisen, arrangements were made some years ago at the Royal Army Medical College to prepare and maintain a very large reserve of the vaccine, and from this reserve we have been able to issue, since mobilisation, more than 170,000 doses for the use of the troops. The vaccine department at the Royal Army Medical College, under Major D. Harvey, will continue for the present the preparation of the vaccine, and we are also fortunate in receiving most generous and valuable assistance from the staff of the Lister Institute and from Sir Almroth Wright. The ideal of universal protection is, I fear, too much to hope for, but with the support of the profession, on which I feel sure we may count, we may hope to save many valuable lives and to minimise one of the gravest causes of depletion of the fighting force.—I am, Sir, yours faithfully,

W. B. LEISHMAN,
War Office, August 16th, 1914. Colonel, R.A.M.C.

THE PRESCRIBING OF NARCOTIC DRUGS.

To the Editor of THE LANCET.

SIR,—The remarks upon the prescribing of narcotic drugs in your leading article in THE LANCET of August 15th are well inspired. It is more than time that new regulations were introduced in this country to check the indiscriminate distribution of drugs to the public. Personally I maintain that no drug of any kind should be dispensed save on production of a prescription written and signed by a medical man. The incalculable harm occasioned by the use of drugs unauthorised is only known to those who, like myself, have made somewhat extensive observations on the subject. Within the last decade I have come across people who were using, without medical advice, the following drugs amongst others: phenacetin, digitalis, nux vomica, pulv. ipecacuanhæ, co., calomel, thyroideum siccum, aspirin, salicylate of soda, bromides, iodides, tr. chloroformi et morphinæ co., tinct. opii, preparations of squills (commonly given to infants), sulphonal, veronal, chloral hydrate, and tinct. belladonnæ. The ease with which these drugs can be obtained by the man in the street is a national scandal calling for instant check.

In writing prescriptions even for quite harmless remedies I am in the habit of appending my signature, and not merely my initials, as the latter do not necessarily convey to the pharmacist the knowledge that a duly qualified person has written the prescription. This practice I teach to students, and also impress upon them the necessity for *writing across* any prescription that should not be repeated the necessary words to that effect. Many to whom I have spoken on the subject have scoffed at my "unnecessary carefulness," but the time has come when probably my teaching will receive recognition in high quarters, and my opponents will be forced to fall into line with a practice which I have adopted ever since I was in a position to prescribe for the sick. Surely too great care cannot be taken for the safety of the public, and your valuable leading article on the subject will help to rouse the profession from their lethargy regarding the need for care in the writing of their prescriptions in future.

I am, Sir, yours faithfully,
JAMES BURNET, M.A., M.D., M.R.C.P. Edin.
Edinburgh, August 18th, 1914.

ORAL SEPSIS AND THE EXTRACTION OF TEETH.

To the Editor of THE LANCET.

SIR,—It was not my intention to raise a controversy, but to call in question only a dangerous line of practice that seemed to me to be developing, so I do not think it necessary, or even desirable, to make any detailed reply either to Mr. J. G. Turner or Mr. F. St. J. Steadman, who alone have criticised my letter to you adversely. But I would like to say this to make my exact position clear—that each of these gentlemen seems to me to hold that pyorrhœa is a common disease, an insidious one, easily overlooked, yet associated with definite changes in the bones, and that it leads to septic intoxication. If what I in my ignorance call gingivitis they call pyorrhœa alveolaris, so be it. My essential point is, however, is it the cause of septic absorption, and is it worthy of the extraction of the teeth in bulk?

Now I will admit Mr. Steadman's impeachment that I have no pretension to being an expert in dentistry, but I am already too familiar with the term "pockets" which both he and Mr. Turner speak of, and I am always on the look-out for them in my poor non-expert way, and I should suppose that anything worthy of such a description should contain pus, exuding under pressure such as the eye could see. Yet neither to my sight nor to pressure of the finger along the gums have I been able to detect this in a considerable number of cases. I certainly "have not taken the trouble to wrap a wisp of cotton-wool round a very thin bristle, and gently passed it round each tooth to find them," nor have I "warmed the bristle after withdrawing it, and held it under my nose." I am quite sure that the teeth of very few of us would stand that test; indeed, if that be my critic's criterion of pyorrhœa alveolaris I can only suppose that he has already immolated all his own ivories and been exceptionally happy in the set of "made-at-homes" with which he has supplied himself. To one not an expert it seems more reasonable to hold that so long as teeth are good, firm in their sockets, free from pain, and serviceable for easy mastication, there is something to be said on the side of keeping our own rather than taking to others that we know not of. We seem to be far too ready to jump from the latest hypothesis of oral sepsis to the proof thereof. The changes said to occur in the bone in these cases, for example, have they been clearly distinguished from those that must exist in company with retrocession of the gum?—an exceedingly common condition that carries with it usually no sign of sepsis.

Again, what adequate evidence is there to prove that "the ulceration of pyorrhœa not found patent on the edges of the gums, but hidden on the toothward side of the gum flaps, that help to form the pockets of pyorrhœa"—if it exist—"frequently

gives rise to gross joint lesions, and many other maladies too numerous to mention." I do not deny it; all I ask for is evidence. Effects from certain causes are too readily assumed. When first the oral sepsis explanation of pernicious anæmia was announced there was the usual hue and cry. How far has it been substantiated? I have seen many a case of pernicious anæmia since then. I cannot record one—I had seen one such before—where attention to the teeth has had any certain effect upon the disease, and it can be but seldom that the suggestion can have helped to its cure.

I am, Sir, yours faithfully,

August 16th, 1914. JAMES F. GOODHART.

To the Editor of THE LANCET.

SIR,—As a contribution to the discussion relating to this subject now raised in your columns I should like to mention a case seen by me four years ago. The patient, a lady of a lifetime of imaginary disorders, drew my attention to the fact that she had undergone extraction of her entire set of teeth since I had seen her a year previously. On further inquiry she informed me that her dentist, whom she had consulted for some trivial dental trouble, had informed her she was suffering from "Rigg's disease," and that it would be necessary to extract all her teeth. Her imaginary ailment at the moment was colitis; this she was assured was caused by "Rigg's disease," and in the event, and with the sanction of her medical attendant, she was rendered edentulous. She assured me with pride that her teeth when drawn were perfectly sound, and I have no doubt they were.

The impression made on my mind at the time was that I had never in a lengthy and varied experience seen so cruel and unwarrantable a procedure under the guise of treatment. In the name of a disease which was not present she was subjected to this outrage for the relief of a condition which was non-existent. It is to be hoped now that the subject has been called attention to under the authority of Sir James Goodhart's name that this form of malpraxis may cease.

I am, Sir, yours faithfully,

C. KNOX BOND, M.R.C.S.Eng., L.R.C.P.Lond.

Builth Wells, August 17th, 1914.

TUBERCULOSIS SOCIETY.

To the Editor of THE LANCET.

SIR,—Recent letters received by the honorary secretary and myself show that, in spite of some recent correspondence in your columns on this matter, the aims and objects of this society are not sufficiently known to those groups of practitioners from which the membership of the society is drawn. The formation of the Tuberculosis Society was a natural outcome of the development of the Tuberculosis Service. In 1910 a small clinical society was formed in London whose members for the most part were medical officers to tuberculosis dispensaries and to sanatoriums. The rapid development of the Tuberculosis Service throughout the country led to the formation of a larger society in 1912.

The work of the Tuberculosis Service is so special in itself that the need of a separate society was at once apparent. The aim of the Tuberculosis Society is to provide a medium for the exchange of experience, for conference, for discussion of points arising in the course of the work both clinical and administrative, and to safeguard and protect the interests of tuberculosis officers and of the Tuberculosis Service. Meetings are held in London on the third Saturday of every month from October to June. At these meetings papers on various aspects of the work are read and discussed, being published later in the quarterly Transactions of the society. Three times a year the society travels to different provincial centres, where meetings are held for the benefit of members in the provinces.

At the annual meeting the office-bearers and committee for the year are elected. The honorary Presidents of the society are Sir Robert W. Philip and Sir William Osler, and the honorary Vice-Presidents include Dr. Arthur Newsholme, Dr. J. Edward Squire, and Dr. Vincent Bowditch, of Boston. At a recent meeting of the society held in the Town Hall of Leeds, and attended by over 50 tuberculosis officers from various parts of the country, it was recommended that the annual meeting of the society be held at the same time and place as the annual conference of the National Association for the Prevention of Consumption. The subscription is 10s. entrance fee and 5s. per annum.

The work of this society during the past year may be briefly indicated. Papers were read and discussed on such varied aspects of tuberculosis as the X Ray Diagnosis of Early Pulmonary Tuberculosis, the Surgery of Pulmonary Tuberculosis, the Present Position of Tuberculin Treatment, the Growth of Legislation Affecting Tuberculosis, a Case of Acute Miliary Tuberculosis with Macroscopic and Microscopic Specimens, and the Future of the Tuberculosis Service. During the past year matters affecting the status and position of the Tuberculosis Service have occupied a considerable portion of the time of the society, whose present membership includes over 100 tuberculosis officers. As a result of recent meetings attended by tuberculosis officers from all parts of England, a memorial in the following terms was drawn up, approved, and has been submitted to the Chancellor of the Exchequer and to the President of the Local Government Board.

Memorial.

Your Memorialists represent the Tuberculosis Society. The Tuberculosis Society is a body including in its ranks Tuberculosis Officers appointed to County Councils, County Borough Councils, and the Metropolitan Borough Councils in England, and to County Councils and Town Councils in Scotland, and also Medical Officers to sanatoriums, farm colonies, and hospitals for advanced cases. The newly constituted Tuberculosis Service consists of medical men engaged in the diagnosis, treatment, and prevention of tuberculosis under public bodies.

For the proper discharge of the duties, which recent legislation in relation to tuberculosis demands, special training and experience are essential. An endorsement of the view that Tuberculosis Officers should be specialists in the work is to be found in the recommendations of the Departmental Committee on Tuberculosis, 1913.

The Local Government Boards have endorsed generally the recommendations of the Departmental Committee and proceeded on the view that these officers are to be regarded as an independent service so far as their clinical duties are concerned, and shall be responsible for the management of institutions to which they are attached.

It seems to your memorialists most important that from the outset a satisfactory status and security of tenure should be insured. Without this it will be difficult to induce the best class of men to enter a service for which years of special training are required. Your memorialists consider it necessary to emphasise the fact that the tuberculosis service is mainly clinical in its duties, and does not therefore naturally lead on to transference to the ordinary administrative posts in the Public Health Service. To regard the Tuberculosis Service as a subsidiary branch of the Public Health Service would be to discourage special training in a

department which constitutes one of the largest fields in clinical medicine.

In some other departments of State Medicine, such as the lunacy and prison service, security of tenure and superannuation have been ensured for officials of the same standing as members of the Tuberculosis Service. A claim for the extension of such treatment on the part of medical officers of health and sanitary inspectors has recently been submitted to and friendly received by the Treasury and the Local Government Board.

Your Memorialists respectfully submit that the Tuberculosis Service has a similar claim to security of tenure and to superannuation, and that such a claim is in the highest interest of an important public service, and is entirely reasonable in respect of those who have entered or may enter this special department.

HALLIDAY SUTHERLAND, M.D., President.
W. O. PITT, M.D., D.P.H., Tuberculosis Officer for Essex; Honorary Secretary of the Tuberculosis Society.

The policy of the society may be taken as definitely expressed in the terms of this memorial. Tuberculosis officers and other medical practitioners interested in the development of this policy and the establishment on sound lines of an efficient tuberculosis service throughout the kingdom are invited to communicate with Dr. W. O. Pitt, honorary secretary, 66, Upper Walthamstow-road, Walthamstow, Essex, with a view to joining the society.—I am, Sir, yours faithfully,

HALLIDAY SUTHERLAND, M.D. Edin.

15, Allsop-place, Upper Baker-street, N.W., August 7th, 1914.

THE RELATION OF FISH TO LEPROSY IN NORTHERN NIGERIA.

To the Editor of THE LANCET.

SIR,—In a valuable article by Dr. B. J. Courtney, West African medical staff, published in THE LANCET of June 27th, on the Treatment of Leprosy by Intravenous Injections of Iodoform in Sokoto Province, Northern Nigeria, the author draws attention to the history of fish-eating in all his cases, and further refers to the native ineffective method of smoke-curing of fish as tending to support the well-known theory of the late Sir Jonathan Hutchinson in regard to the cause of leprosy.

I was stationed at Sokoto in 1910–11 and studied the prevalence and distribution of leprosy in that part of Nigeria. The results were published in the Northern Nigeria Medical Report, 1910, an extract appearing in the *Journal of Tropical Medicine and Hygiene*, March 1st, 1912, and if near the truth showed that the proportion of lepers to population in Sokoto Province greatly exceeds that reported in most countries where figures are obtainable, with the exception of some of the Pacific Islands. The calculated figure for the province was 52 per 10,000. Dr. Courtney is correct in stating that in the native view "not every kind of fish can convey leprosy, but only certain kinds." It might be added that fish is only one of very many causes of leprosy in native belief, whether in Sokoto or in other parts of Nigeria.

Without wishing to oppose the dried fish theory, I do not think that the native idea necessarily affords any support thereto. I have never found that either Mohammedan or pagan tribes in Northern Nigeria ever attribute leprosy to the eating of their universally known commodity, smoked fish, unless the latter be of a variety which is under suspicion even when fresh.

The two points which are of interest and which might be of value as a guide to research are as follows: 1. While all beliefs incriminate a variety of foodstuffs, along with other less substantial agencies, fish of one or a few defined species is common to all. It is not dried fish that is feared but the particular species. In the above-mentioned memorandum I have stated that in Sokoto a right-minded person of sufficient authority, seeing the culpable variety of fish exposed for sale, will confiscate and destroy it. 2. In most cases definitely brought to my notice the species could be attributed to the scaleless family of *Siluridæ* or catfishes (in the original paper I had recorded the species erroneously as barbel). It is possible, however, to over-estimate the importance of this as a guide, for the native mind which associates the white spots and stripes of the bush-buck with the leucodermatous patches of the leper, and therefore puts a tabu on the flesh of this antelope unless the hunter is protected by a charm, may be equally suspicious of the smooth, slimy, and often maculated skin of the catfish.

Further, probably all Hausas associate with leprosy the smooth-skinned lizard or skink, *Mabuia perrottetii*, and in Sokoto, where the catfish idea is particularly restricted to two or three definite species, one of the latter is simply supposed to be the transformed lizard. Although I have expressed a doubt as to whether the native mind connects leprosy with smoked fish, I none the less think that Northern Nigeria contains the materials for a very useful investigation as to the truth of the late Sir Jonathan Hutchinson's views and the fact that, although some 30 species of the *Siluridæ* are already known from the basins of the Niger and Benue within the confines of Northern Nigeria, only a few are under suspicion by the native tribes, might possibly help to focus the inquiry so far as fish are concerned.

I am, Sir, yours faithfully,

JOHN M. DALZIEL, M.D., B.Sc.Edin., D.T.M. & H.,
Senior Municipal Sanitary Officer.

Lagos, Nigeria, July 28th, 1914.

INEBRIETY AND INSURANCE COMPANIES.

To the Editor of THE LANCET.

SIR,—Two cases have recently come to my personal knowledge showing the extraordinary methods of insurance companies with regard to claims made upon them by persons who have voluntarily placed themselves under treatment for inebriety.

In the first case, a patient while in residence in an inebriate sanatorium, when in perfect physical health, probably better health than he had been in for years, and when he was perfectly sober and had been a total abstainer for three months, sustained an injury by a fall in a boat while trout fishing. The insurance company, learning from the address on the notepaper and from the signature of the doctor that he was a patient in an inebriate sanatorium, refused utterly to pay the claim, although the patient had paid 12 years' premiums, and had made in that time only one small claim, which latter, made when he was living an intemperate life, was paid without question.

The second case is that of a patient in the same sanatorium who was insured and whose candidature was accepted when living an intemperate life, and who on going to a sanatorium forfeited his policy by doing so. Both these persons by going to a sanatorium lessened, if they did not

entirely remove, the risk of death or injury due in any way to alcohol, and their reward is that both are informed that the entry into such sanatorium renders their policy void. Persons are constantly accepted by insurance companies for life and accident policies who are, to say the least of it, intemperate as regards alcohol, and yet when one of these appreciates his danger and sets about curing himself of his intemperance, the insurance companies promptly on acquirement of the knowledge deprive him of benefits. I think, Sir, it is time this matter was aired and better attention given by insurance companies to intemperance among their policy owners. Both the persons mentioned here are far better lives to-day when the companies see fit to cancel their policies than they were when their applications were accepted.

I am, Sir, yours faithfully,

J. W. ASTLEY COOPER,
Medical Superintendent, Ghyllwoods sanatorium.

August 10th, 1914.

THE TECHNIQUE OF ARTIFICIAL PNEUMOTHORAX.

To the Editor of THE LANCET.

SIR,—May I again ask your indulgence in order to answer further criticisms of my paper in THE LANCET of July 11th on the technique of inducing artificial pneumothorax?

The only observation of importance is that made by Dr. Claude Lillingston in your issue of July 25th, who reminded me that in operating for the first time a false pneumothorax might result, and that this is more likely if the gas were free to flow (though not necessarily flowing) from the reservoir as the needle passes through the tissues. In this connexion I was at first undecided which of two courses to recommend in my paper—(1) that of allowing gas to be free to flow from the beginning, or (2) that of turning on the gas as soon as a negative pressure, even without oscillations, is indicated by the manometer. I finally decided on the first because, as a result of experience, I came to the conclusion that the operator would immediately recognise a false pneumothorax from the irregularities in the pressure rendered obvious when the two-manometer method is used. Still, I am not prepared to maintain that the second course is not a proper one, and if it were adopted clearly Dr. Lillingston's objection would disappear. But what I do maintain is that in the case of first injections to insist on ample fluctuations before turning on the gas is practically to insist on making air leak from the lung into the pleural cavity. Dr. Clive Riviere, in his letter in your issue of August 8th, begs the question when he says that he "would still oppose theory with fact and retort that ..... this fluctuation occurs under conditions where leakage from the lung cannot really be held to occur." I would ask him on what grounds he says that leakage cannot be held to occur. The other points raised have reference to the apparatus. Mr. W. C. Rivers remarks in your issue of August 1st that "it is unlikely, until insular experience is a good deal greater, that British workers will succeed in wiping their (continental workers') eye." Mr. Rivers's unworthy argument is almost complimentary.

I am again compelled to disclaim the advantage which Dr. Riviere persists in seeing in my manometer—that is, one in which the open limb is a reservoir, in the case where such a manometer is compared with one in which the two limbs are of equal bore. Since in the first the level of the fluid in the open limb remains practically the same, a fall of the level of the fluid of 10 cm. in the closed limb indicates a rise of pressure of 10 cm., whilst in the other, such a fall, being accompanied by an equal rise in the open limb, indicates a rise of pressure of 20 cm. Thus, where the same length of manometric tubing is used for both, my manometer would, without the movable reservoir of the open limb, have a range of pressure half that of the other.

Finally, Dr. Riviere, in criticising adversely the two-manometer method, a method which he has not tried, says that he is "still in the hopeless condition of considering the single manometer an extremely satisfactory instrument." Even if this were admitted, does he not here display precisely the same spirit as those pioneers who rejected even a single manometer? When such a spirit exists discussion is futile.

I am, Sir, yours faithfully,

London, W., August 15th, 1914. WM. PARRY MORGAN.

GUN DEAFNESS AND ITS PREVENTION.

To the Editor of THE LANCET.

SIR,—Mr. F. Rogers, of 327, Oxford-street, London, W., after working upon various materials has succeeded in producing ear plugs which, so far as I have tested them, meet all the requirements mentioned in my article on Gun Deafness and its Prevention, published in THE LANCET of August 15th. Whilst counteracting the injudicious effects of loud and sudden noises upon the ears they do not prevent hearing. They will be of service not only for the purpose for which they have been especially made, but also to invalids and others desirous of escaping from disturbing noises.

I am, Sir, yours faithfully,

London, W., August 16th, 1914. JOBSON HORNE.

"ENCYCLOPÆDIA MEDICA."

To the Editor of THE LANCET.

SIR,—Since writing to you last in reference to the manner in which Messrs. Green and Sons advertise their "Encyclopædia Medica," a new prospectus, dated July 14th, has been issued by this firm. It professes to contain "a list of contributors to the first edition, with the addition of the names of those who have so far agreed to contribute to the second." It is hard to believe, but it is a fact, that my name is included amongst these, in spite of my previous letters to the medical press on the subject, and in spite of the fact that Messrs. Green have not yet asked for my permission or consent. I have written to them and their answer begins: "We have your letter, and thought this matter had been adjusted previously, and cannot understand why you should have written to us as you do." The letter then goes on to ask whether I am prepared to revise or to refuse to revise my articles for the new edition, and the final sentence reads: "That every contributor, *so far as we know*" (italics are mine) "is going to revise." This statement does not appear to agree with the statement from the prospectus, which I have already quoted.

It will be interesting to know how many of the contributors in this prospectus have actually agreed

to revise, or have only agreed in the mind of Messrs. Green.—I am, Sir, yours faithfully,

HENRY JELLETT.

Rotunda Hospital, Dublin, August 15th, 1914.

RED CROSS AND VOLUNTARY AID DETACHMENTS' WORK.

To the Editor of THE LANCET.

SIR,—The work of the Red Cross Society and the voluntary aid detachments throughout the country is threatened at its outset by the same confusion that so crippled the Red Cross work in the Boer war. Important letters have appeared in the press from Lord Rothschild and others who speak with authority. Private houses and public buildings are being turned into hospitals and convalescent homes without consideration for any organised scheme or for their geographical position. The number of buildings offered and prepared is far in excess of the funds or the personnel at the disposal of the Red Cross Society or any other bodies. In the case of the voluntary aid detachments it is to be feared that their zeal outruns their performance. The detachments vie with each other in providing accommodation to an extent which will neither be required nor could be maintained from private subscription if it was required. The whole of this complicated work lacks organisation and central control.

This confusion arises largely from the fact that many of the Territorial associations insisted upon taking the work out of the hands of the Red Cross Society just at the wrong moment. If the society had been left alone for another year they might have coördinated the work and the finances of the "V.A.D.'s" within each county area; but the Territorial associations have many of them insisted on forcing the detachments away from the Red Cross Society, and have afforded neither constructive nor financial assistance, and have as yet done nothing to organise the efforts of units widely scattered, unequally financed, and often in mutual competition.

The evil can only be remedied by the immediate formation of a capable staff in each area, not hampered by any other work. It is impossible at this juncture to leave such organisation in the hands of busy general practitioners. Such a staff should include architects or sanitary engineers, medical officers of health, and retired R.A.M.C. officers of experience. It is certainly not too late to put this matter on a proper footing, and to lessen further extravagance and waste of energy.

I am, Sir, yours faithfully,

August 19th, 1914. V.A.D.

THE PUBLIC HEALTH OF BELFAST.—Application has been made to the Local Government Board to sanction a supplemental loan of £6000 in connexion with the additions to the Purdysburn municipal fever hospital and nurses' quarters. A sum of £2180 has been overspent in connexion with the loan of £25,000 for additions to the hospital, and the sum of £2820 was in respect of the nurses' quarters, making a total of £6000. For the five weeks ended July 18th the total death-rate in Belfast from all causes was 16·4, while the mortality from zymotic diseases was 2·7 and from chest affections 4·2. Among the infectious diseases notified between June 14th and July 18th, out of a total of 189 cases there were 138 of scarlet fever, which seems now to be almost endemic in Belfast, it has prevailed so many years. For the new Central Tuberculosis Institute the ground about to be cleared by the Belfast corporation at the corner of Durham-street and College-street West has been recommended as a central site.

THE WAR.

A TRIUMPH OF NAVAL AND MILITARY ORGANISATION.

Now that the veil of obscurity that for nearly a fortnight has hung over the movement of the British Expeditionary Force has been lifted, and we can realise the great success achieved by silence in the despatch and safe arrival at the appointed spot of that force "without a single casualty," the wisdom of the policy of secrecy, trying though it be in such a state of national tension, will be fully grasped. Assuredly, both the nation have behaved with praiseworthy bravery and restraint, in spite of word of mouth forebodings of concealed disaster, and the press have loyally played their part. The authorities, and especially Lord Kitchener, whose genius for military organisation has been so frequently and abundantly displayed, have earned both the confidence and the gratitude of the nation; and in view of the distinct pledge given that no news of victories or reverses shall be unduly kept back, we may hope that, as heretofore, unauthorised depressing suggestions will be met with equanimity.

GOVERNMENT AND THE RELIEF OF DISTRESS.

A further official communication from the Local Government Board, dated August 17th, urges that all funds locally raised for the relief of distress should be forwarded in the first instance to the National Relief Fund, which will be available wherever needed throughout the country. Local committees should confine relief as far as possible to ordinary residents, but with care not to interfere with mobility of labour. Local action may in some cases suffice to adjust difficulties arising from dislocation of trade; in other cases the intervention of a Government department may be necessary. The Board suggests that there should be one central register, on the card index system, of assistance for the area covered by each local committee or subcommittee, the register to comprise four groups: (1) persons in receipt of poor relief; (2) persons registered by the distress committee, if any; (3) persons dealt with by the Soldiers' and Sailors' Families Association; and (4) all other applicants. In determining the question of assistance to be given in any case committees should have regard to all the circumstances of the applicant. They should ascertain: (1) applicant's ordinary occupation; (2) dependants; (3) the Approved Society to which insured persons belong and their numbers in that society, or, if a deposit contributor, his number; (4) whether registered at labour exchange; (5) special qualification or experience for any class of work; (6) date and place of last employment; and (7) any source of income. They should obtain and record any sickness or disablement benefit, meals given to school children, unemployment benefit, half-pay or other assistance from employer, or aid from charitable funds, in a manner which will not appear unduly inquisitorial. The committee should not itself set up anything in the nature of a Labour Exchange for supplying men to employers in localities where the Board of Trade Labour Exchanges are established. It is suggested that cards of different colours be used for men and women, the same as those used by the Insurance Committees—viz., white for men and blue for women, and for Army or Navy cases red cards.

The particulars in the first part of the front of the card should be obtained from the applicant himself. With regard to sources of income, some, if not all, of the particulars may be obtained from Approved Societies, local education authorities, and other bodies concerned. The manner in which the case has been dealt with and the dates will be recorded on the back of the card. Relief works should not be opened or recourse had to the distribution of relief funds until other means of dealing with distress have proved inadequate. Local authorities within the area of the committee should realise the importance in the national interest of proceeding steadily and continuously with the ordinary public works for which provision has already been made in their estimates. The Road Board will be notified by the Local Government Board of districts in which special provision in excess of the ordinary should be made for road work, and the Road Board are prepared to make grants in those districts towards excess expenditure on the general work of road improvement. Invitations for applications for grants will be issued by the Road Board as soon as selected districts have been notified to them. On receipt of such a notification the Road Board will communicate with the road authority of the area concerned. The Local Government Board would offer no objection to the establishment and incidental expenses of the committee being defrayed out of local rates, but the committees will no doubt largely avail themselves of voluntary aid. It will be obvious that the burden of these instructions is the very salutary one of concentration and centralisation of all endeavour. Individualism in great crises spells, if not disaster at least pitiable waste. A multiplicity of small agencies is fatal. The large funds, the central organisations must be supported. Energy diffused is energy impotent. Only when it is controlled and directed by competent central coördinating authority can it become an effective force.

THE MAINTENANCE OF SANITARY SERVICES.

The Local Government Board has issued a circular drawing the attention of local authorities to the great importance of maintaining the efficiency of the sanitary service of the country at the present time. In many areas the medical officers of health and other officers engaged in public health work will be giving their services to the navy or army, and it will be necessary for the local authority to make other arrangements for carrying on their work. It is essential that there should be no relaxation of the activities of local authorities in the prevention and control of epidemic diseases, the protection of water-supplies from contamination, and the promotion of child welfare, and in securing the wholesomeness of food supplies and the general sanitary condition of each area. On this account it is important that all vacancies in the minor sanitary staff should be filled up. The actual steps which may be open to local authorities to replace medical officers of health who are absent on naval or military duty will vary in different districts. In many areas adequate temporary arrangements may be made by coöperation between the county and district authorities or between neighbouring district authorities. The Board will be glad to be informed of each case in which a medical officer of health or chief sanitary inspector or inspector of nuisances has been given leave of absence for naval and military service, and of the steps taken to arrange for the temporary discharge of his duties.

THE SHORTAGE OF DRUGS.

The war with Germany is making us realise acutely how dependent we are upon that country for the supply of drugs. Practically the whole range of synthetics useful as antiseptic, antipyretic, and analgesic agents are of German manufacture, and besides there are the alkaloids, the salicylates, and the whole of the potash salts. Naturally, the question has arisen as to whether in such a crisis we cannot usefully begin to manufacture these products for ourselves. Some of them we undoubtedly can, and it is to be hoped that English manufacturers will show spirit and seize the opportunity. The chief difficulty will be in obtaining raw materials, of some of which Germany has hitherto had an exclusive supply. The Government can afford facilities for bringing some of this immense industry to this country. We have plenty of trained chemists who can be just as skilled as the German chemist in the art of producing fine chemicals. It is an interesting fact to consider now that so many of the chemical products of German manufacture had their origin in British genius. We invented, but the Germans applied. The anilines is the case in point which is always quoted, but it is not a solitary instance. Before we can take over manufacturing drugs ourselves on any scale certain facilities will be needed, and one in particular will be the relief of the duty on alcohol when used for manufacturing purposes. This tax has heavily handicapped English manufactures in the past, and its removal should now appeal to our Government. The great progress made in Germany in the manufacture of drugs and fine chemicals has been due largely to the abundant supply of alcohol for use in the great refining and recovery processes concerned. The removal of the duty on alcohol used for manufacturing purposes is, we think, bound to be the first step when contemplating the manufacture of drugs in this country on any appreciable scale.

The Government have appointed a Medical Committee to consider the supply of drugs for curative purposes in the United Kingdom, with special reference to the ways in which the medical profession can assist in effecting economies. The following members have been appointed to the committee:—Chairman, Dr. J. Smith Whitaker; Sir Thomas Barlow, Sir T. Lauder Brunton, Dr. A. Cox, Dr. E. Rowland Fothergill, Dr. B. A. Richmond, Dr. F. J. Smith, and Dr. W. Hale White. Dr. E. W. Adams, medical officer of the National Health Insurance Commission, late lecturer in pharmacology, University of Sheffield, will act as secretary to a professional and scientific body upon which the National Health Insurance Commission, the Royal College of Physicians of London, the British Medical Association, and medical practice, panel and non-panel, are well represented.

THE BRITISH RED CROSS SOCIETY.

The Ambulance Department of the Order of St. John of Jerusalem forms part of the Red Cross Organisation of Great Britain, equally with the British Red Cross Society and the St. Andrew's Ambulance Association, and is recognised by the British Government under Article 10 of the Geneva Convention as a Society to assist the medical services in time of war. Funds are urgently needed, as already over 4000 men of the St. John Ambulance Brigade have been mobilised as hospital

orderlies with the Navy and Army, several thousands more being held in reserve. Surgeons and a large number of fully certified hospital nurses have been despatched by the Ambulance Department to Belgium at the request of the Belgium Red Cross Society.

The British Red Cross Society is organising its resources to afford effective coöperation with the military medical forces both at home and abroad. On August 15th, on the request of the Belgian Government, a party consisting of 10 surgeons and 10 dressers, with 20 nurses, left Charing Cross for Belgium. Major the Hon. R. White escorted the party to hand it over to the Belgian authorities. From Guy's Hospital a detachment of 4 sisters and 10 nurses left for the front on August 17th. At home committees of the society have been formed as follows:—Arrangements for the transport of Red Cross assistance to our allies: Major the Hon. R. White. Auxiliary Home hospitals: Dr. Edward Stewart. Convalescent Homes Joint Committee, with the Soldiers' and Sailors' Help Society: Princess Christian, Sir Rowland Bailey, Lady Northcote, Major-General Lord Cheylesmore, Major Tudor Craig, F.M. Lord Grenfell, Georgina Countess of Dudley. Distribution of medical and general comforts to home hospitals: Mr. Horace Folker, Mr. H. W. Laurie. Finance: The Hon. N. C. Rothschild, Mr. E. A. Ridsdale. Hospital and ambulance ships: Sir Frederick Treves, Dr. Edward Stewart. Hospitals and Red Cross assistance abroad, stores, equipment, and staff: Sir Anthony Bowlby, Lady Perrott. Medical comforts and general gifts of stores: The Hon. A. Stanley, M.P., Lady Ampthill, Lady Wolverton. Motor and ambulance transport: Sir Frederick Treves. Office: Sir Walter Lawrence. Contributions to the society's funds during the week ending August 15th are said to have totalled £25,000, but this is inadequate for the work to be done, and further donations, which should be sent to Devonshire House, Piccadilly, are required. The headquarters of the Edinburgh branch are at 2, Frederick-street, Edinburgh. Work is being organised for the manufacture of garments of prescribed patterns, descriptions of which may be obtained at headquarters. A War Office communiqué asks the public to refrain from turning dwelling houses into small private hospitals, as the demand for necessary equipment, personnel, &c., is thus unnecessarily multiplied. Here, as elsewhere, concentration is the necessary policy, and the need for insisting upon this fact is shown by the letter which appeared last week in the *Times* from Lord Rothschild, and no less by the suggestive communication from "V.A.D.," which appears in another column, who begs for the exercise of central control over much badly directed benevolence.

As far as London is concerned, the County of London branch is inundated with offers of private houses, and several of them have been selected to be recommended to the War Office. But it is not houses that are wanted, it is money at this juncture—money to equip subsidiary hospitals, money for buying flannel which willing hands cut up into shirts and pyjamas, bed-jackets, and dressing-gowns; also money for postage. There are 1200 voluntary members in London who for some years have been trained under doctors and nurses to supply the needs of the Territorials, and hundreds of recruits are offering themselves every day, but money must be obtained. This is one of the great chances of help which can be afforded by those who have not been trained for personal service. Kit bags of clothing and blankets for the sick and wounded sailors and soldiers may be sent to the Stores Department, 83, Pall Mall, S.W., to be warehoused until wanted. Subscriptions and donations should be sent to Devonshire House.

THE ENGLISH CONJOINT BOARD.

In view of the Royal Colleges having determined to hold a special Final Examination, commencing on Sept. 8th, to meet the exigencies of the situation demanded by the war, it has been decided to admit candidates to such examination under the following conditions:—

1. All candidates who would be eligible for admission to the October examination shall be considered admissible to the special examination in September.
2. Candidates who were referred for three months at the July examination will be admissible to the special examination in September without producing certificates of additional study.
3. Candidates who fail at the special September examination may be admitted to re-examination in October by resolution of the examiners on consideration of the standard attained by them.
4. Candidates will be admitted to any part of the examination in September if they have completed the courses of study required for that part, without having necessarily completed the whole curriculum, under the conditions of the Old Regulations, but they will be required to have attended all the courses prescribed by the Regulations before completing the examination.

Candidates who failed in July will be allowed to present themselves for ordinary September first and second examinations without producing additional certificates.

IMPORTANCE OF ANTITYPHOID INOCULATION.—Attention may be directed to the very important letter by Colonel Sir W. B. Leishman, R.A.M.C., appearing in another column, on the importance of antityphoid inoculation among all troops. Even at home stations, at the present juncture, the liability to typhoid fever in armies is well known, and was exemplified with terrible fatality among the troops in home camps during the Spanish American War, as well as in the South African War, to which Sir W. B. Leishman refers. It behoves medical men, therefore, whether territorial officers or civilian practitioners, to make themselves familiar with the established facts in regard to the protective power of antityphoid inoculation, that they may be able convincingly to second the efforts of the military authorities to spread the practice as much as possible among territorial troops and even among the civil populations near whom these troops are quartered. Our special correspondent in Paris notes the huge quantities of antityphoid vaccine that have been prepared there.

FEAR OF CHOLERA ON THE RUSSO-AUSTRIAN BORDERS.—It is inevitable that the fear of all forms of epidemic disease should be before the minds of those more particularly responsible for the efforts to maintain in good health the vast forces now opposing each other throughout the breadth of Europe. Insanitation, privation, physical fatigue, and mental strain are the inevitable accompaniments of war, and their victims are more numerous than the victims of bullet or steel can possibly be, granting the campaign to last more than a few weeks. Somewhere or other along the vast battle front we may be certain that conditions will arise favouring the spread of enteric fever, while on the eastern horizon we have added the fear of cholera. It is, however, of good omen that the epidemic of cholera which visited Russia last year seems, as stated in an article recently supplied to our columns by Dr. F. G. Clemow, C.M.G., physician to the British Embassy at Constantinople and delegate for Great Britain to the International Board of Health at Constantinople, to have come to an end in November. We must not build too much upon this fact, as at least one case has been reported from Kherson on the Black Sea as recently as July 9th, so that in Russia and Austria-Hungary alike the

possibilities of an epidemic of cholera must not be lost sight of.

PRINCESS HENRY OF BATTENBERG'S HOSPITAL.—H.R.H. Princess Henry of Battenberg has been lent No. 30, Hill-street, Berkeley-square, by Jeanne Lady Coats, and has placed it at the disposal of the Army Medical Service as a hospital for the reception of wounded officers from both Services. The hospital will be under the personal management of the Princess. Sir Frederic Eve will act as surgeon, and Dr. A. J. Rice Oxley, physician to her Royal Highness, will be medical director.

THE SCOTTISH MEDICAL SERVICE EMERGENCY COMMITTEE.—This committee has been constituted for the purpose of assisting to meet the immediate difficulties, in regard to medical practice among the civil population, which have arisen or may arise owing to the departure of practitioners summoned to take up military duty. It is understood that some 300 Scottish practitioners have been thus called away from their practices, and more are liable to be called for at short notice. In large towns these difficulties are little felt, for the practitioners remaining have willingly undertaken to attend to the work and to safeguard the interests of their absent colleagues. But in smaller places and in rural districts such friendly arrangements are less easily made. Locum tenents are not numerous and the rate of remuneration they expect tends to become prohibitive. To cope with the emergency the committee suggests that the following steps should be taken:—

1. That it should be generally agreed that the fee offered to a locum tenens taking the work of a practitioner engaged in military duty should not exceed 5 guineas a week.
2. That retired practitioners willing to relieve their professional brethren, and so to enable them to serve their country in the field, should send their names to the emergency committee forthwith for registration and ultimate allocation to temporarily vacant practices.
3. That it be suggested to the educational authorities that school medical officers should be permitted to give at least part of their time to general work.
4. That the visiting staffs of large hospitals, infirmaries, and asylums should consent to a reduction of the numbers of their medical residents and clinical assistants, and should themselves undertake a proportion of the work usually assigned to these junior officers.
5. That in the larger towns young practitioners, whose practices are not yet extensive, should in pairs make an arrangement whereby one undertakes the whole town practice for (say) two months, while the other acts temporarily in the country for a third colleague absent on duty; and so alternatively for successive periods.

In these and other ways the committee has reason to believe that a sufficient supply of practitioners for the present need could be provided; what is still required is to bring the workers and the work together. The committee is convinced that the profession generally will recognise that the needs of the civilian population must continue to be met, even in the presence of an imperative call for an adequate service in the field; and that whoever relieves a colleague summoned to military duty *ipso facto* is also serving his country in this time of stress. The ordinary agencies for the supply of qualified assistants and locum tenents are in active operation, and they should in the first place be resorted to by practitioners requiring such assistance. The committee does not propose to assume the functions of such agencies. But by furnishing a bureau or "clearing house" for the collection and dissemination of information, on the one hand, regarding districts or practices deprived of qualified practitioners to work them, and on the other hand, regarding practitioners prepared to undertake the duty of supplying such vacancies for a time, the committee is satisfied that a valuable service may be rendered to the profession and the public. The committee is now ready to receive communications from medical practitioners in Scotland who are desirous either of obtaining or of affording professional help in the circumstances above indicated. All such communications should be addressed to the Convener, Medical Emergency Committee, Royal College of Physicians, Edinburgh.

MEDICAL ARRANGEMENTS IN THE NORTH OF SCOTLAND.—In Aberdeen two large schools have been converted into hospitals, the scholars being housed elsewhere. At the Royal Infirmary only the most necessitous are being received; many of the wards are empty and kept ready for casualties, in all 150 beds being available. Arrangements have been made for the temporary staffing of the hospital in the absence of members of the honorary medical and surgical staff called up for military service. Offers of assistance of emergency supplies of provisions in case of any sudden call on the institution, as well as of convalescent homes and motor cars, have been received.

In Banff three large rooms in the Elementary Academy have been equipped as a hospital, the work of the school being confined to the other two class rooms of the building.

In Dundee 16 doctors who were on the panel have been mobilised, leaving something like 25,000 patients on their lists to be attended by their colleagues. The Local Medical Committee have assumed corporate responsibility for their work, their scheme providing for a central office and a central dispensary, for which latter purpose the out-patient department of the infirmary will be used. All messages will be sent to the central office, and it is proposed to distribute visits by locality and by rota amongst the doctors willing to participate in the scheme. All the medical men left in Dundee are willing to do their share of the work, and it is estimated that the mere visits will mean an addition of from 10 to 15 per day to each man's list. At the central dispensary it was anticipated that six or eight men could be simultaneously working there, the spells of service being divided into two hours each. There would be no discrimination between private and panel patients, except in the records, which for insured persons would be white, and for private patients red. Forbearance is asked of patients with regard to the choice of doctor; but in the case of a practitioner attending a patient it would always be the same one.

MILITARY MEDICAL ORGANISATION IN THE WEST: A WELSH HOSPITAL FOR THE WAR.—Following the precedent of the South African war, it has been decided to offer the War Office a fully staffed and equipped hospital for service in the field, the entire cost to be borne by funds raised in the Principality. The proposed accommodation is for 100 patients and the cost is estimated at from £15,000 to £20,000, of which amount £2500 were at once contributed by Sir James Thomas, a Rhondda colliery owner. The control of the hospital has been placed in the hands of Lieutenant-Colonel W. Sheen, R.A.M.C. (T.), who was associated with the Welsh hospital in South Africa.

The third Western hospital established under the Territorial scheme is nearly complete. Three large schools have been utilised in accordance with arrangements previously decided upon. Provision is made for 520 beds, and 100 beds will be available at the King Edward VII. Hospital, Cardiff, if required. The military hospital, which is intended to serve the Welsh Division of the Territorial Force, covering the whole of Wales and the adjoining counties of Cheshire, Shropshire, and Herefordshire, will be under the command of Colonel David Hepburn, R.A.M.C. (T.).

During the past few years a great deal of enthusiasm has been displayed in South Wales in connexion with the St. John Ambulance Association and the British Red Cross Society. In the county of Glamorgan alone there are 59 detachments of the latter, and there is evidence on all hands of considerable activity on the part of the various units. At Merthyr Tydvil Cyfarthfa Castle has been granted to the local society for use as a hospital.

ST. BARTHOLOMEW'S HOSPITAL.—The governors have placed a wing of the hospital (198 beds), staffed and maintained by the hospital, at the service of the War Office if required. All the visiting medical and surgical staff belong to the Territorial Forces, and No. 1 General Hospital R.A.M.C. (T.F.) (520 beds) is staffed entirely by St. Bartholomew's men. Fifteen of the resident staff and 30 students, dressers, &c., have gone on active service, and a certain number of students have gone to No. 1 Base Hospital. The hospital has undertaken to provide 28 sisters or nurses for the Admiralty and 30 for the War Office; 35 have already been drafted to various naval or military hospitals. Also some 30 members of the nursing staff belonging to the Territorials have been mobilised. Until further notice the out-patient special departments will be open only on two days a week, otherwise the service of the hospital will continue as usual.

UNIVERSITY COLLEGE HOSPITAL.—At this hospital the whole of the resident staff have proceeded on active service with either the Army or the Navy, and their work is now being done by old students of the hospital as volunteers. Twenty-four nurses have also gone and others will follow. Half the consulting staff have been mobilised

for service either with the Territorial Army or in connexion with No. 3 Base Hospital. The authorities of the above hospital have placed at the disposal of the Admiralty 100 beds for their use if required. Arrangements are being made by which the new chemical buildings at University College can, in the case of necessity, be fitted up and utilised as an annexe to the hospital. Special courses of instruction in dressing and nursing for the Cadets of the Officers Training Corps have been instituted.

MIDDLESEX HOSPITAL.—The authorities have placed 80 beds at the disposal of the War Office and Admiralty, and have offered to equip the whole of their branch hospital of 100 beds (in an emergency an additional 50 or 100), which is self-contained, having its own laundry and electrical light and power plant, as a complete surgical hospital. More than half the senior consulting staff are attached to No. 3 Base Hospital, and several house surgeons have gone on active service, as have many qualified students. The War Office and the Admiralty have called up 30 members of the nursing staff. The work of those who have left is being carried out by their remaining colleagues. The cadets of the Officers Training Corps are receiving special instruction, and more than 300 ladies are attending the "First-aid" classes by members of the staff.

ST. THOMAS'S HOSPITAL.—The governors and staff have offered to place 200 beds at the service of the State. More will be provided as required, and tents will be erected for extra beds between the blocks if necessary. No. 2 Territorial Hospital calls out some of the senior members of the staff, but the general body of the staff will be on full duty at the hospital during the war. Between 40 and 50 St. Thomas's men have already gone on duty with either the army or the navy. The resident staff have stood loyally to their duty, and the full work of the hospital in regard to the civil population is maintained. Arrangements have been made for the transference of suitable cases after the first treatment to Lady Henry Somerset's Home at Duxhurst and other places. Classes for special instruction of dressers have been undertaken by a member of the surgical staff, and extra students from the various University Officers Training Corps are now attending the hospital. Many nurses have been sent to both the Army and Navy Nursing Service. Facilities are offered to Red Cross nurses to gain experience.

ST. GEORGE'S HOSPITAL.—The house committee have placed at the disposal of the Admiralty and War Office 100 beds at this hospital and its convalescent branch at Wimbledon. Three of the physicians and two of the surgeons have been called away on active duty; the remainder of the senior staff are gazetted for service at No. 4 Base Hospital which is being organised at King's College Hospital. Of the 15 house officers, 13 have received appointments in the Army or Navy Medical Services. Some of the visiting surgeons have entered into residence to act as house surgeons, in addition to their ordinary work. A great many offers of assistance have been received from old St. George's men to fill up vacancies. Arrangements have been made for special courses of instruction in dressing for men from the universities.

BIRMINGHAM HOSPITALS AND THE WAR.—As in other large centres, the war has profoundly disturbed medical work in Birmingham. The 1st Southern General Hospital of the Territorial Force has been mobilised, the Edgbaston buildings of the University being converted into a hospital of 520 beds or more if necessary. Lieutenant-Colonel Marsh, the Administrator, Major J. E. H. Sawyer, the Registrar, and Lieutenant Bennison, the Quartermaster, have devoted all their time to the necessary preparations, and the *à la suite* staff are holding themselves in readiness for duty. The staff, among others, consists of 15 active members of the staffs of the General and Queen's Hospital. These two hospitals have given notice that only urgent cases can be admitted, and that no waiting list for admission will be compiled. Five members of the assistant staff of the General Hospital have already left to take up various military duties, and one assistant surgeon from the Queen's Hospital. So far no wards have been definitely closed, but as some are closed for cleaning it is doubtful whether they will be reopened. Many of the smaller hospitals in the midlands are prepared to receive a certain number of military patients. The general practitioners have held a meeting to arrange to carry on the practices of those of their number who have been called away.

ORGANISATION AT PORTSMOUTH.—A Portsmouth correspondent writes:—"Portsmouth bristles with war activities and is playing its part in the great crisis with the traditional patriotism of the chief naval port. The Fifth Southern General Hospital Territorial Force has been mobilised. The municipal school buildings have been prepared for hospital use, one with a service of 500 beds, and the work of equipping them has been carried out with expedition. The nursing arrangements are under the control of Miss Alcock, matron of the Royal Portsmouth Hospital, who is the principal matron of this division. Ninety-one nurses have been called up from an enrolled list of 120. All the nurses have had three years' hospital training. Many voluntary agencies are at work in the interest of sailors' and soldiers' wives and families, care being taken that no over-lapping occurs in giving assistance. Ladies are volunteering to visit the wives of the sailors afloat. Miss Agnes Weston (the well-known bluejacket's friend) has established both here and at Devonport a depôt for Red Cross supplies. Arrangements have been made by which 30 extra children can be admitted immediately into the Royal Naval and Marine Orphan Home should occasion arise. The local subscription for the Prince of Wales's relief fund amounts to £2500. Many cases of aliens acting as spies having occurred, it has been deemed essential for the national safety to order all Germans and Austrians to leave the town. Official intimation has been given that all licensed public-houses must be closed at 9 P.M. until further notice. It has not been thought necessary to assign beds in the Royal Portsmouth Hospital for war patients, as the facilities for their reception in the special hospitals seem ample for the present. Several members of the honorary medical and surgical staff and many local practitioners have volunteered their services wherever they might be required. In view of these offers for war duty the Portsmouth Panel Committee recommend that insurance patients on the lists of doctors who are serving in the present emergency should be attended gratuitously by the remaining National Insurance doctors, and that transfers from the lists of those serving should be refused except in very special cases."

HAMPSTEAD PRACTITIONERS AND ABSENT COLLEAGUES.—At a meeting of members of the medical profession practising locally in the borough of Hampstead, held at the Hampstead General Hospital on August 13th, it was unanimously resolved "to safeguard loyally the interests of those colleagues called in the service of their country to leave their practices; and that any medical duties for the absentees should be performed under arrangements favourable to the latter, the ordinary custom of the neighbourhood being the basis upon which such arrangements should be made." The resolutions were typical of many others which have been passed by meetings of practitioners throughout the country.

AT the beginning of the week medical men were invited to volunteer for the duty of examining recruits, and many applications were accordingly made to the Secretary of the Territorial Force Association of the County of London, at the Duke of York's Headquarters, Chelsea, S.W.

A MOTOR-CAR Corps is being formed to assist Red Cross work in this country by Sir Frederick Treves and Lord Norreys. Owners of cars who are willing to place them at the disposal of the British Red Cross Society are invited to address the society (Dept. No. 8) at Devonshire House, Piccadilly, London, W., and should state whether they can supply cars with or without drivers. Orders have been given by the War Office that in no circumstances are the motor-cars of civil medical practitioners to be impressed.

NATIONAL FOOD REFORM ASSOCIATION.—This association is drawing attention to the fact that the small publications which they issue at the price of 1*d*. ("Economical Dishes for Workers") and 2*d*. ("Hints Towards Diet Reform") inculcate exactly the doctrines of economy and modification appropriate to the present position.

THE BELFAST HOSPITALS AND THE WAR.—The board of management of the Royal Victoria Hospital, Belfast, have offered to provide 50 beds at once for wounded sailors or soldiers, and a further 50 beds at 24 hours' notice. The city corporation of Belfast have decided to place at the disposal of the military authorities, for hospital purposes, the Exhibition Hall, Belfast, and the Albert Bridge-road Institute; while Miss Stewart Clark has offered her residence, Cairndhu, Larne, as a convalescent home for wounded officers and men of the army and navy. Owing to a number of the nursing staff of the Samaritan Hospital, Belfast, having been requisitioned by the military authorities, it has been decided to close that institution for the present.

UNIVERSITY OF GLASGOW.—Sir Donald MacAlister, Principal of the University, states that to undergraduate students of the University called to active service every consideration will be extended. In relation to attendance on courses of instruction, to duration of study, and to periods of notice required, account will be taken of absence on military duty, so as, where possible, to ensure that graduation will not be unduly delayed. In short, the University will do whatever the Ordinances permit to safeguard the academic interests of its soldier alumni.

ADDRESSES FOR REFERENCE.

The following list of addresses will be useful to our readers for various reasons. No attempt has been made to classify them, and only such institutions as have a defined and important purpose have been included:—

Army Medical Service, Director-General, The War Office, London, S.W. (Surgeon-General A. T. Sloggett, Kt., C.B., C.M.G., K.H.S.)

Automobile Association, Fanum House, Whitcomb-street, London, W.

Belgian Relief Fund (cheques to the Belgian Minister), 15, West Halkin-street, Belgrave-square, London, S.W. (Clothing, &c., to Mr. Navaux, 8, Chiswell-street, Finsbury-pavement, London, E.C.)

British Fire Prevention Committee, 8, Waterloo-place, London, S.W.

British Red Cross Society, Devonshire House, Piccadilly, London, W.

Central Advisory Committee for the Prevention and Relief of Distress, Local Government Board Offices, London, S.W.

Corps of Veterans.—Ex-service men are asked to send in their names to Major Arthur Haggard, 47, Bedford-row, London, W.C.

County of London Territorial Force Association, Duke of York's Headquarters, King's-road, Chelsea, London, S.W.

General Medical Council, 299, Oxford-street, London, W.

League of the Empire, 28, Buckingham-gate, London, S.W.

London Volunteer Defence Force, proposed.—Honorary Secretary, Percy A. Harris, Exhibition Buildings, Aldwych Site, Strand, London, W.C.

National Patriotic Association (Personal Service).—Honorary Secretary, A. Lindsay Bell, 32, St. Paul's Churchyard, London, E.C.

National Relief Fund, Treasurer, H.R.H. the Prince of Wales, Buckingham Palace, London, S.W. (money only).

National Relief Fund, 3, Queen Anne's-gate, Westminster, S.W. (offers of help other than money).

Navy, Medical Department of the, Director-General, Admiralty, London, S.W. (Surgeon-General Sir Arthur W. May, K.C.B.)

Ottoman Red Crescent Society, 35, Mildmay Chambers, Bishopsgate, London, E.C.

Queen Alexandra's Appeal for the Wives and Families of Soldiers and Sailors (Colonel Sir James Gildea), 23, Queen Anne's-gate, Westminster, S.W.

Queen Alexandra's Imperial Military Nursing Service. Address: The Secretary, The War Office, London, S.W.

Queen Alexandra's Military Hospital, Grosvenor-road, London, S.W.

Queen Mary's Needlework Guild.—London guilds should send their gifts to the honorary secretary, Friars' Court, St. James's Palace, S.W., marked Q.M.N.G. Local guilds should send to their local officers.

Recruiting for the Regular Army, Central Office, New Scotland Yard and Branch Offices.

Royal Army Medical College, Grosvenor-road, London, S.W.

Royal Patriotic Fund, 17, Waterloo-place, London, S.W.

Soldiers' and Sailors' Families' Association, 23, Queen Anne's Gate, S.W.—Assistance to families of soldiers and sailors.

Special Constables.—Head Office, Scotland House, New Scotland Yard. Apply to your local police station.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ARDAGH, V. L., M.D. Dub., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Maiden Newton District of the county of Dorset.

HOLLAND, RADDLEY, M.D. Lond., M.R.C.P. Lond., F.R.C.S. Eng., has been appointed Assistant Obstetric Physician to King's College Hospital.

WHITE, C. RICHARDSON, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Public Vaccinator and Medical Officer for the Glasbury District of the Hay Board of Guardians.

The Medical Officer in Charge, Military Wing, Royal Flying Corps, Farnborough, has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Farnborough No. 2 District of the county of Hants.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERYSTWITH GENERAL HOSPITAL.—House Surgeon and Secretary. Salary £175 per annum, all found.

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

AYRSHIRE SANATORIUM, Glenafton, New Cumnock.—Assistant to the Resident Medical Officer. Salary £150 per annum, with board and rooms.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £120 per annum, with board and residence.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.

BIRMINGHAM, CITY FEVER HOSPITAL, Little Bromwich.—Assistant Medical Officer. Salary £200 per annum, with board, residence, and laundry.

BIRMINGHAM FEVER HOSPITAL.—Temporary Medical Superintendent (female). Salary £250 per annum, with board and residence.

BIRMINGHAM UNION.—Fourth Assistant Medical Officer at Dudley-road Infirmary. Also Assistant Medical Officer at Selly Oak Infirmary. Salaries respectively £140 and £160 per annum, with board and residence.

BLACKPOOL, VICTORIA HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

BODMIN, CORNWALL COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £225 per annum, with quarters, board, laundry, and attendance.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-Resident House Surgeon for six months. Salary at rate of £150 per annum.

BRISTOL, CITY AND COUNTY, TUBERCULOSIS SCHEME.—Assistant Medical Officer, temporary. Salary at rate of £350 per annum.

CANNING TOWN WOMEN'S SETTLEMENT HOSPITAL, Balaam-street, Plaistow, E.—Female Senior Resident Medical Officer. Salary £120 per annum, with board and laundry.

CLINICAL RESEARCH ASSOCIATION, Watergate House, York Buildings, Adelphi, W.C.—Assistant Director of the Laboratories. Salary £250 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—Senior House Surgeon, House Physician, and Junior House Surgeon. Salaries £150, £110, and £100 per annum respectively, with residence, board, laundry, and attendance.

CROYDON BOROUGH HOSPITAL FOR INFECTIOUS DISEASES.—Assistant Resident Medical Officer. Salary £150 per annum, with board, residence, and laundry.

CROYDON UNION.—Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Workhouse and Children's Homes. Salary £225 per annum.

DERBY, DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer. Salary £80 per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.

DUNDEE ROYAL INFIRMARY.—Resident Medical Officers.

EDINBURGH, ROYAL ASYLUM, Morningside.—Assistant Physician. Salary £175 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House Surgeon for six months and House Physician for four months. Salaries at rate of £75 per annum, with board, residence, and washing.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Junior Assistant Medical Officer for six months. Salary at rate of £110 per annum, with board, apartments, and washing.

GENERAL LYING-IN HOSPITAL, York-road, S.E.—House Physician. Salary at rate of £50 per annum, with board and residence.

GLASGOW ROYAL MATERNITY AND WOMEN'S HOSPITAL (OBSTETRICAL DEPARTMENT).—Two Indoor and Two Outdoor House Surgeons. Also Outdoor House Surgeon at the West-End Branch.

GLASGOW SCHOOL BOARD.—Female Assistant Medical Officer.

HACKNEY UNION INFIRMARY, High-street, Homerton, N.E.—Junior Assistant Medical Officer. Salary £140 per annum, with rations, apartments, and attendance.

HALIFAX ROYAL INFIRMARY.—Second and Third House Surgeons, both unmarried. Salaries £120 and £100 per annum respectively, with residence, board, and washing.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Two Female Resident Casualty Officers for six months. Salary at rate of £50 per annum, with board, residence, and laundry.

HOLBORN UNION INFIRMARY, Archway-road, Upper Holloway, N.—Second Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

HULL ROYAL INFIRMARY.—Assistant House Surgeon. Salary at rate of £100 per annum, with board and lodging.

HULL, VICTORIA CHILDREN'S HOSPITAL, Park-street.—Female Resident House Surgeon. Salary £50 per annum, with board and laundry.

ILFORD URBAN DISTRICT COUNCIL.—School Dentist. Salary at rate of £250 per annum.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, S.W.—Second Resident Medical Officer. Salary at rate of £70 per annum, with board and laundry.

LEAMINGTON SPA, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—House Physician for six months. Salary £85 per annum, with board, residence, and laundry.

LEICESTER ROYAL INFIRMARY.—Assistant House Surgeon and Ophthalmic House Surgeon for six months. Salary at rate of £100 per annum each, with board, apartments, and washing.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—Resident Surgical Officer, House Surgeon, and Two House Physicians, all for six months. Salaries respectively £70, £60, and £60, with board, residence, and laundry.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL.—House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and laundry.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident and Assistant Medical Officers for three months. Salaries at rate of £200 and £120 per annum, with board, residence, &c.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £100 per annum, with board, lodging, &c.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, coal, and gas.

MANCHESTER ROYAL INFIRMARY.—Medical Officer for Out-Patients and Accidents for six months. Salary at rate of £100 per annum, with board and residence. Also Three House Physicians, House Surgeon, and Four Junior House Surgeons, unmarried. Board and residence provided.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER (SOUTH) HOSPITALS, West Didsbury.—Second and Third Assistant Resident Medical Officers. Salary £175 and £150 per annum respectively, with rations, apartments, and attendance.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Surgeon and Assistant House Surgeon for six months. Salary at rate of £60 and £40 per annum respectively, with board and washing.

NEWPORT (MON.), ROYAL GWENT HOSPITAL.—Resident Medical Officer. Salary for first six months at rate of £100 per annum, second six months £125, and third six months £150, with board, residence, and laundry.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £300 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £180 per annum, with apartments (not board), attendance, light, and fuel.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Physician. Salary £120 per annum, with board, residence, and laundry.

OLDHAM, COUNTY BOROUGH OF.—Clinical Tuberculosis Officer. Salary £350 per annum.

PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, washing, and attendance.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £90 per annum, with board, &c.

PRESTON ROYAL INFIRMARY.—House Physician. Salary £120 per annum, with board, residence, and laundry.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary £80 per annum, with board, residence, and washing. Also Female House Physician and Casualty House Surgeon for six months. Salary £80 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—Second House Surgeon. Salary at rate of £80 per annum, with lodging, board, and laundry.

ROCHESTER, ST. BARTHOLOMEW'S HOSPITAL.—Resident House Physician for six months. Salary at rate of £110 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL.—Assistant House Surgeon. Salary £110 per annum, with board, lodging, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Twenty-five Appointments.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Junior Resident Medical Officer. Salary at rate of £70 per annum, with board and washing. Also Senior Resident Medical Officer. Salary at rate of £90 per annum, with board and washing.

ST. LEONARD, SHOREDITCH, INFIRMARY, Hoxton-street, N.—Junior Assistant Medical Officer for six months. Salary £150 per annum, with board, apartments, and washing.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington, W.—Demonstrator of Physiology. Salary £150 per annum.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon. Salary at rate of £100 per annum, with board and residence.

SALISBURY (GENERAL) INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and lodging. Also Assistant House Surgeon. Salary £75 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Resident House Surgeon. Salary £80 per annum, with board and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House Surgeons. Salaries £100 and £80 per annum respectively, with board, residence, &c.

SHEFFIELD, EAST-END BRANCH OF THE CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board and residence.

SHEFFIELD ROYAL HOSPITAL.—Honorary Assistant Dental Surgeon.

SHERBURN HOSPITAL, near Durham.—Medical Officer. Salary £300 per annum and house.

SOMERSET COUNTY EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

STOCKPORT UNION, STEPPING HILL HOSPITAL.—Resident Assistant Medical Officer. Salary £150 per annum, with apartments, rations, &c.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £125 per annum, with board, washing, and attendance. Also House Physician. Salary £125 per annum, with board, apartments, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon and Anæsthetist. Salary £110 per annum, with board, residence, and laundry.

WALTHAMSTOW EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing. Also Locum Tenens Medical Officer. Salary 6 guineas per week, with apartments, board, attendance, and washing.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant Resident House Surgeon and Anæsthetist, unmarried. Salary £100 per annum, with board, residence, and washing.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Resident Medical Officer. Salary £160 per annum. Also Senior House Physician and Senior House Surgeon. Salary £120 per annum. Also Junior House Physician and Junior House Surgeon. Salary £100 per annum. Board, residence, and washing provided in each case.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WHITECHAPEL UNION INFIRMARY, Vallance-road, E.—Second Assistant Resident Medical Officer. Salary £120 per annum, with rations, apartments, and washing.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board, washing, and attendance.

WREXHAM INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board, lodging, and washing.

THE Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Eastern District of the Sheriffdom of Perth. Applications should be addressed to the Private Secretary, Scottish Office, not later than Sept. 4th.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Corris, in the county of Merioneth; and at Yatton, in the county of Somerset.

Births, Marriages, and Deaths.

BIRTHS.

MASINÁ.—On July 23rd, at Nepean Sea-road, Malabar Hill, Bombay, India, the wife of H. M. Masiná, F.R.C.S., of a daughter.

MARRIAGES.

BOOTH—ELLIOTT.—On August 18th, at St. Barnabas Church, Kensington, by the Rev. G. Pelham Ackworth, uncle of the bridegroom, Claude Hebden Barker, M.R.C.S., son of the late Samuel Barker Booth, of Gray's Inn, London, to Grace Octavia, youngest daughter of the late Edmund Frederick Elliott and Mrs. Elliott, of Holland-road, Kensington.

MALPAS—SCHARLACH.—On August 15th, at All Souls', Langham-place, Dr. Douglas Duncan Malpas, elder son of D. D. Malpas, M.D., of Biarritz, France, to Hilda Louisa, daughter of Dr. F. Scharlach, of The Briers, Highams Park.

PIRIE—COLLIE.—On August 15th, at Balnagarth Pitfodels, Aberdeen, by the Rev. Martin Lewis, D.D., assisted by the Rev. C. W. Hunter, M.A., and the Rev. James Wishart, B.D., William Rattray Pirie, M.B., C.M., M.A. Aberd., to Ella Gordon, daughter of the late George Collie, Advocate in Aberdeen.

DEATHS.

BRUCE.—On June 30th, at Quilpué, near Valparaiso, Chile, Peter Bruce, M.R.C.S. Eng., L.D.S. Eng., L.S.A. Lond., aged 63.

KELSALL.—On August 12th, at Surbiton, Isabel Gertrude, wife of Captain Robert Kelsall, Indian Medical Service, and only daughter of the late Brigade-Surgeon Edward James Sexton, aged 38.

MCCULLOCH.—On August 12th, suddenly, at Bognor, Dr. Henry D. McCulloch, M.B., aged 54.

TREWHELLA.—On August 9th, at Monart, Torquay, Henry Ellery Trewhella, M.D., aged 82.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET.

INFORMATION intended for the Students' Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub-Editor, and marked on the envelope "Students' Number Only."

THE COST OF LIVING IN AUSTRIA AND GERMANY.

A PARAGRAPH in our Vienna letter of Jan. 25th, 1913, makes interesting reading to-day. It deals with the increased cost of living in Austria, and states that the fact that a large proportion of the population is underfed has been officially admitted in connexion with the results of recruiting for the army. Austria is being rapidly transformed into a manufacturing country, the agricultural part of the population now forming less than 40 per cent. of the total. The recruits coming from towns are, as a rule, less well fed than those from the country, unless they belong to well-to-do families. Within the last six years the price of food has increased considerably—milk 30 per cent., meat 40 per cent., sugar 25 per cent., flour 25 per cent., vegetables 50 per cent., and fruit 30 per cent. House rent has gone up to the extent of 30 or even 100 per cent.

Germany, also, has been remarkably transformed into a manufacturing country since the empire was founded in 1871, when there were only eight towns with a population of over 100,000 inhabitants, whereas the number of such towns in 1913 was 50. The number of people engaged in agriculture has remained stationary since the beginning of the last century, and all the increased population has gone to make the towns. It is a nation of town-dwellers. The reason is that the German workmen prefer to do skilled work themselves and leave "unskilled" to foreigners.

These facts go to show that the influence of the increase of town life has a most important bearing upon the whole welfare and future of any State and that this question deserves far more close attention by the authorities than it has yet received; for with the rapid growth of towns and the neglect of agriculture the whole character of a population and its aspirations must be entirely changed, sometimes with most far-reaching and disastrous effects.

NUMBER OF DOCTORS ON THE PANEL.

To the Editor of THE LANCET.

SIR,—With reference to my inquiry in THE LANCET of July 11th on this subject, I now observe that the question has been answered in the *British Medical Journal* of August 15th, p. 149, where extracts are printed from a document placed before the annual Representative meeting at Aberdeen which had been prepared by instruction of the council. From it I observe that the total number of individual panel practitioners in England, Scotland, and Wales is 14,522, and the total number of individual non-panel practitioners in the same area is 14,967, giving a total of panel and non-panel together of 29,489 individual medical men. I observe also that of the total of 14,967 non-panel men there are 10,545 not in general practice, leaving 4422 non-panel men in general practice who probably could be, but are not, on the panel; but it is also remarked that many non-panel men have partners or assistants who are on the panel. This valuable information throws a much clearer light on the situation than has hitherto been done, although it is not safe to draw from the figures too definite conclusions as to the real popularity or otherwise of panel practice.

I am, Sir, yours faithfully,

London, August 15th, 1914. INQUIRER.

WHAT TO DO WITH CHEAP FRUIT.

IT is stated in the Memoirs of Sir A. D. Home, K.C.B., whose death we recorded last week, that both in the Crimea and in India men and officers alike craved for marmalade or jam. Here is an opportunity for some wealthy patriots to negotiate for converting some of the cheap fruit which we learn is on the market into jam and get it conveyed to the front. The price of sugar may not be such a drawback, as there are other scientific methods of sweetening jams which could be adopted to meet the circumstances of the occasion. The cause for the surplus of cheap fruit is reported to be that fruit is largely, and in some cases almost entirely, withdrawn from the ordinary dietary of the public at this time of stress, the rooted idea in this country being that fruit is a luxury. There is no doubt that to dispense entirely with fruit on such an assumption is foolish; it reflects hardly upon a number of people engaged in commerce, while the public deprives itself of pleasant, economical, and valuable food. It will be seen on referring to the report of the committee which investigated the food requirements of the body in active service, published in THE LANCET of Jan. 3rd, 1914, p. 59, that, amongst other things, 4 oz. of jam (additional to the existing issue) was recommended.

SUNFLOWER OIL.

A CORRESPONDENT points out that the oil from sunflower seeds could probably be used in the place of olive oil, and as a large quantity of this plant is grown more or less extensively in this country for decorative purposes and for drying up the moisture in damp soils, he suggests that the seeds might be forwarded to some central station where the oil could be expressed. The sunflower, however, would have to be cultivated on a very large scale before any important yield was obtained, as under the best conditions 100 parts by weight of seed give not more than 15 to 20 parts of oil. The sunflower oil industry is centred chiefly in Russia.

B. L.—The following books could well be added to the list published last week: Die Schussverletzungen des Schädels im Kriege, Beobachtungen und Erfahrungen während des Russisch-Japanischen Krieges, 1904-1905. Von Otto Holbech. Berlin: August Hirschwald. Pp. 479. Price 12 marks. (Shot Wounds of the Skull in War, Observations and Experiences during the Russo-Japanese War.) This volume formed one section of a series of official publications relating to military medicine and surgery, and contains an extensive bibliography. It was reviewed in THE LANCET of Nov. 1st, 1913, p. 1265. It may now be inaccessible. Les Blessures de Guerre par les Armes Modernes et leur Traitement. Par le Dr. Th. Weiss, Médecin principal de 2e Classe de l'Armée Territoriale, Professeur à la Faculté de Médicine de Nancy. Paris: Berger-Levrault, 1912. Pp. 89, with 54 illustrations. Price 3 francs.

G. R. (*Middlesbrough*).—Our correspondent has omitted to sign his letter on the subject of health visitors.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced.

In 1914:—

May 1st–Nov. 1st (Lyons).—International Town Hygiene Exhibition.
,, 15th–Oct. 15th (Berne).—Swiss National Exhibition.
May–October (London, Shepherd's Bush).—Anglo-American Exposition.
July–September (Australia).—Eighty-fourth Annual Meeting of the British Association for the Advancement of Science. (August 20th to 26that Sydney, August 27th to Sept. 1st at Brisbane).
Aug. 29th–Sept. 14th (Toronto).—Canadian National Exhibition.
Sept. 7th–12th (Berne).—International Congress for Neurology, Psychiatry, and Psychology.
,, 10th–12th (Fort William and Port Arthur, Ontario).—Fourth Annual Congress of the Canadian Public Health Association.
,, 21st–26th (Victoria, B.C.).—Dominion Exhibition.
,, 21st–26th (Vienna).—Third International Congress on Diseases of Occupation.
,, 30th–Oct. 4th (Brussels). Fourteenth French (de langue française) Congress of Medicine.
Oct. 31st–Nov. 2nd (Berlin).—First Congress of the International Society for Sexual Research.
Nov. 15th–21st (London).—Health Week. (Under the direction of the Health Week Committee appointed by the Royal Sanitary Institute.)

In 1915:—

Feb. 20th (opens) (San Francisco).—Panama-Pacific International Exposition.
May 31st–June 5th (London, South Kensington).—Sixth International Congress of Social Work and Service.
Sept. 5th–8th (Hamburg).—Tenth International Congress of Otology.
,, 8th (begins) (Manchester).—Meeting of the British Association
,, 9th–12th (Hamburg).—Fourth International Rhino-Laryngological Congress.
,, 13th–17th (New York).—Seventh International Congress for Obstetrics and Gynæcology.

The following magazines, journals, &c., have been received:—Journal of Laryngology, Rhinology, and Otology, Journal of Pathology and Bacteriology, Therapist, Journal of State Medicine, Tumori, Journal of Tropical Medicine and Hygiene, American Journal of Surgery, Bulletin of the Johns Hopkins Hospital, Interstate Medical Journal, Clinical Medicine, Maryland Medical Journal, St. Paul Medical Journal, Symons's Meteorological Magazine, Child, South African Medical Record, Canadian Practitioner and Review, British Journal of Dermatology, Albany Medical Annals.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. Gibb: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Souttar: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. Gibb: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Souttar: Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), London Hospital, Mile End-road, E.

Demonstrations in Clinical Medicine:—

MONDAY.—2.15 P.M., Dr. Wall: Pulmonary Tuberculosis. (Clinical Theatre.)

TUESDAY.—2.15 P.M., Dr. Grünbaum: Diseases of the Blood. (Clinical Theatre.)

WEDNESDAY.—2.15 P.M., Dr. Miller: Abdominal Diseases. (Out-patient Department.)

THURSDAY.—2.15 P.M., Dr. Thompson: Diseases of the Nervous System. (Clinical Theatre.)

FRIDAY.—2.15 P.M., Dr. L. Smith: Common Cardiac Conditions. (Clinical Theatre.)

SATURDAY.—10.15 A.M., Dr. Hutchison: Demonstrations on Selected Cases. (Wards or Clinical Theatre.)

Demonstrations on Selected Surgical Cases and on Cases of Interest in the Wards of the Hospital:—

MONDAY.—2 P.M., Mr. Milne.
TUESDAY.—2 P.M., Mr. Lett.
WEDNESDAY.—2 P.M., Mr. Howard.
THURSDAY.—2 P.M., Mr. Warren.
FRIDAY.—2 P.M., Mr. Walton.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

MONDAY.—10 A.M., Obstetrical Lecture: Extra-uterine Pregnancy. 11 A.M., Examination of Patients and Minor Operations.

TUESDAY.—10 A.M., Major Operations.

WEDNESDAY.—10 A.M., Obstetrical Lecture: Extra-uterine Pregnancy (continued). 11 A.M., Examination of Patients and Minor Operations.

THURSDAY.—10 A.M., Major Operations.

FRIDAY.—10 A.M., Gynæcological Lecture: Vesico-vaginal Fistulæ. 11 A.M., Examination of Patients and Minor Operations.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1914, which was completed with the issue of June 27th, were given in THE LANCET of July 4th.

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THE LANCET Office, August 19th, 1914.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 13	30·20	E.	...	123	81	61	63	65	Fine
,, 14	30·07	E.	...	124	80	63	63	67	Fine
,, 15	29·90	S.E.	...	84	69	62	62	66	Overcast
,, 16	29·96	E.	...	127	76	56	58	62	Cloudy
,, 17	30·09	N.E.	...	121	73	57	58	61	Cloudy
,, 18	30·17	N.E.	...	115	70	54	54	59	Fine
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